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MAMMITIS BOVIS—MASTITIS GARGET.*

BY WM. ALSTON EDGAR, F.R.C.V.S., DARTFORD.

WHEN requested, in September last, to read a paper at the March meeting of our Association, I was not aware that it would be held in London, or that we should have the honour of being associated for the time being with the Central Society, or I might have chosen for discussion a disease of greater interest to town practitioners.

I, however, make no apology for bringing the subject under consideration, as it is one of special interest and importance to the large and ever-increasing number of our clients who devote their time and capital to the great milk supply of our country. It must be within the knowledge of all present that dairy-farming is now receiving much anxious attention from a large number of agriculturists, who have, owing to combined causes, much reason to desire a more lucrative field of labour than ordinary agriculture.

With the progress of science, the stock-owner has a right to expect, on the part of his veterinary adviser, an increased attention to those diseases which, from their frequent occurrence, are a source of continual loss.

Very much time has been occupied, and profitably so, by members of our profession in discussion, and writing upon what

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are termed the "great bovine scourges"; but, in doing this, neglect many important every-day diseases, which are, as I shall attempt to show in the case of Mammitis, causing great annual losses, although these losses accrue in such a way as to be frequently overlooked.

From the literature of a subject one may fairly form a criterion as to its estimated importance, and get an accurate idea as to the general knowledge possessed concerning it.

Following this line of argument, and perusing veterinary literature published in this country during the past fifteen years, it must, I fear, be conceded that few only have been interested in the pathological condition under our consideration. Indeed, in 1878, it was stated in this city by a well-known medical gentleman that "Garget is not much known to veterinary surgeons"; this statement was, however, at the time disproved by Professor Axe and others. So far as I am aware, Mammitis has received little attention from our medical societies, excepting in a secondary way—in its relation to Diphtheritis, by a paper read by Professor Axe before the Central Veterinary Medical Association in February, 1879. I trust, however, our discussion to-day will bear evidence that, although our literature is somewhat meagre upon the subject, a large amount of skill, based upon physiological principles, is daily combating this localised, yet severe, and often intractable, malady. I am fully sensible that a very large number of cases of Mammitis never receive veterinary attention at all, it being with many dairymen a preconceived conclusion that the attacked quarter of gland is, of necessity, lost—at any rate, during present period of lactation; and, consequently, a severe milk loss is quietly borne, and no skilled treatment is brought to bear upon it. Doubtless, this opinion has been arrived at from a series of failures in treatment, and such a result is only to be expected if the advertised remedies for the malady are extensively used.

The value of the milk loss following an unsuccessful case of Mammitis is very considerable. It may be computed, in first-class milkers, at from £4 to £10 per annum for every quarter of gland lost. Allowing a cow 344 milking days in twelve months (or more, as in cases where the animal is not "dried off" at all),

and estimating for the loss of one quarter of gland an *average diminished* secretion of *one quart per day*, would equal a milk loss of 344 quarts, which, at 3d. per quart, would be £4 6s.; when, as frequently happens, two or more quarters are lost, and sometimes the whole gland, the loss is increased beyond this proportion. In making this estimated loss, consideration is taken of the subsequent hypertrophy of division of gland remaining sound; but this by no means compensates for the lost quarter, or quarters, and greatly suppressed secretion during the acute period of attack. As the result of an outbreak of Infectious Mammitis in a dairy of 180 cows, Professor Dieckerhoff, of Berlin, estimated the diminished secretion, in loss of one quarter only, at from three to five pints per day.

It may thus be seen that this local disease in dairy stock, being of such frequent and general occurrence, is a source of great annual loss, quite apart from its occasionally fatal termination.

Before proceeding with the pathology of Mammitis, allow me briefly to call your attention to the anatomy of the mammæ.

The mammary is a conglomerate gland, divided into four primary divisions, or quarters. Each lateral mammary mass is enclosed in a fibro-elastic capsule, which is reflected through the centre of the mass, thus dividing the gland into four. Each division is made up of lobulæ, which are formed by union of alveolæ, or acini; from the latter the lactiferous ducts proceed, the united branches of which form a single galactopherous sinus at the base of the mammilla, or teat, having a single orifice. The alveolæ are attached by connective tissue, in which the nerves and blood-vessels ramify. The nerves are derived from the first lumbar pair, arteries from the external pudic. The nerves, blood-vessels, and lymph spaces follow the lactiferous ducts in their course, the capillaries forming a spiral plexus around the alveolæ. Upon the external surface of the membrana propria, or basement membrane of alveolæ, the secreting epithelium is situated, its type here being cubical or stratiform polygonal cells; in the lactiferous ducts it is cylindrical, in a single layer. The whole gland has a subcutaneous yellow fibro-elastic covering, connected by fibrous suspensory bands to, and continuous with, the abdominal tunic.

The inflammatory changes in the gland vary in different forms of the malady; in Catarrhal Mammitis, the basement membrane and epithelial lining are chiefly involved, while in the phlegmonous form the parenchyma is attacked.

We have, for our consideration, Specific or Contagious Mammitis, Septic Mammitis, Special Mammitis due to Eczema Epizoötica, Variola Vaccina, or Tuberculosis; and the several traumatic forms, as Erysipelatous or Phlegmonous, Interstitial, and Catarrhal Mammitis. As my object in bringing this subject forward is to point out Mammitis as a daily loss to stock-owners, I propose to engage your further attention principally upon the forms most commonly met with—viz., those of traumatic origin, touching only briefly and generally upon the special and less frequent kinds.

The extrinsic causes of simple Mammitis may be referred to mechanical injury, kicks or blows, bruising upon edge of gully when stalls are too short (a frequent cause); concussion from dropping down heavily upon hard, rough, or imperfectly constructed flooring, covered by insufficient bedding; cold, badly-drained pavement; exposure to excessive bottom draught from doors or windows; lying in wet pastures during sudden changes of temperature; retention of milk in the udder in cases of so-called "over-stocking" or from improper emulsion; abrasions and cuts on mammillæ, or abrasions from simple Eczema or papilloma on latter; injuries to lining membrane of teats from straws or lacteal calculi. Intrinsic causes are chiefly dietetic—injudicious feeding, or sudden and entire changes of food—in fact, anything producing gastric, enteric, or hepatic disturbance; it may, however, be caused by systemic chills, cold, and localisation of pyrexia. The so-called cases of Mammitis common in primiparæ, are invariably nothing more than acute hyperæmia, with subcutaneous effusion.

The cause of Infectious Mammitis, which is but little known in this country, is referred by Professor Zurn, of Leipzig, and Dieckerhoff, of Berlin, to the presence of micrococci and bacteria. Professor Axe appears to have observed this malady in London in 1878, briefly described in his paper before-mentioned, although the symptoms noted in this outbreak differ in an important particular from those observed by Dieckerhoff.

Special Mammitis, produced by Variola Vaccina or Eczema Epizoötica, is due to a localisation of the general disease in the lining membrane of the galactopherous sinuses and lactiferous ducts, and such cases occasionally terminate in Septic Mammitis, the latter being generally fatal, as the whole gland is involved. In these cases the secondary udder lesions follow the character of the erysipelatous type, and constitute by far the most severe forms of the malady.

Infectious Mammitis, according to Dieckerhoff and Franck, of Munich, may affect animals not in lactation, and be extended to ewes and sows.

S. R. Smith, late of Grantham, writes indefinitely of Mammitis affecting heifers* and "dry" cows, but does not regard it as infectious.

The diagnosis of Mammitis is not difficult, owing to the well-marked local lesions; these, are, however, preceded or accompanied by systemic changes.

A well-marked febrile period is invariably to be noted, the degree of pyrexia being in direct proportion to the acuteness of attack and extent of gland tissue involved; it is always less severe in the catarrhal form.

Well-marked rigors are accompanied by a rise of temperature, of from two to five degrees. The pulse rate also varies with the severity of the local condition, being generally from seventy to ninety per minute, respirations quickened up to eighty per minute, almost simulating an attack of Pulmonary Hyperæmia. Anorexia and inrumination existing during the severe pyrexial stage invariably give place, when the temperature falls, to a fair appetite and free rumination; locomotion is, if possible, avoided, but if the animal be forced to walk, considerable abduction of the hind extremities takes place, in order to remove lateral pressure upon the mammary gland. The milk supply is greatly diminished. The systemic disturbance is generally greatest when the lacteal secretion is at its height, and the phlegmonous form of the malady is present.

Many, or all, of the foregoing conditions have frequently passed before the veterinary surgeon is consulted; the symptoms being

* Query: What does he mean by "heifer"?

then confined to the changes in the lacteal secretion and gland.

The affected divisions of the udder (in a large percentage of cases the posterior) are hot, red, swollen, and hard, the effusion gravitating towards the base of the mammillæ ; great pain is evidenced on pressure upon the tumefied part, and the act of mulsion is resisted. The secretion is much altered in character ; the fluid is of a dirty yellowish-grey colour, sometimes tinged with blood, or of a citron hue, containing flocculi of casein of a whitish colour, much resembling pus, owing to the large number of fat globules. A microscopical examination of the fluid will indicate an imperfectly-formed secretion, there being, with the greatly reduced quantity of fat globules, a very large proportion of colostrum corpuscles, many showing fractured margins. If there is no septic change in the gland, the fluid possesses a faint, not unpleasant, odour, and sweet taste ; its reaction is almost always neutral, or very faintly alkaline. Professor Dieckerhoff has noted, in the Infectious Mammitis, an acid reaction ; I have found this condition of milk only in cases of suppressed lochia, with absorption from the mucous membrane of the uterus. If, during the attack, frequent mulsion is not had recourse to, the secretion, when withdrawn, is in a semi-solid condition, owing to absorption of the watery part and coagulation.

In acute phlegmonous cases, the gland and teats are so tense that the removal of the secretion is most difficult, and this especially if the mammillæ are short and the posterior quarters involved. Under such conditions abscess is sometimes the result, the pus being generally deeply seated, and covered by an enormously thickened parenchyma and subcutaneous effusion ; absorption of the gland tissue and evacuation is a slow process, if unassisted by the knife.

In the catarrhal form the exactly opposite condition obtains, the gland being generally flaccid and contracted ; there may not be a single lobule in the whole quarter indurated. This form of disease is much less painful, and of a more chronic character.

Mammitis must be distinguished from Mammary Œdema, sometimes accompanying an acute case of benign Eczema. Here there is no alteration of milk, but simply a diminished secretion,

owing to the enormous pressure upon the lobulæ of the gland by the subcutaneous effusion, which may extend from the labiæ to the floor of udder; there is no pain or palpitation in this condition. In a case under my care, a few days ago, the mammary gland, teats, legs, thighs, quarters, and back were thickly covered by serous effusion, yet the gland structure and milk were normal for four days.

In some cases, purulent infiltration follows the pus formation; such cases, in my experience, generally prove fatal. I have not tried the heroic treatment of mammary amputation, employed successfully by Mr. H. Burnes at Malpas in 1873.

In Mammitis accompanying Variola Vaccina or Contagious Eczema, it generally extends from the teats to the gland structure, and this extension is noted by Professor Dieckerhoff as an essential condition in Infectious Mammitis—thus differing materially from Professor Axe's cases of the same malady, where he specially remarks its commencement in the gland structure.

I have thus briefly drawn your attention to an outline of Mammitis Bovis, in order that I may enter rather more fully into the matter which concerns us more intimately—viz., the treatment of cases brought under our notice.

In this I must apologise at the outset for anything that is not altogether new, and, further, for attempting to upset some errors in treatment advocated in some of our text-books. Strict attention to matters of simple detail is in this, as in many other diseases, of much greater importance than is generally admitted. I am not here to-day to discuss the treatment of this disease, without a strong conviction that we have yet much to learn in dealing remedially with the most simple pathological conditions which are daily under our notice.

My attention has been devoted for some considerable time to this disease. I was struck, during the years of my pupilage, with the very large percentage of failures in treatment of Garget, and, when I look back upon the measures employed, am only surprised that any cases recovered at all. While at that time recovery was the exception, under a system of treatment I will attempt to explain recovery will be the rule.

When treatment is employed at the onset of disease, the same general principles may be brought to bear regardless of the exact local lesions. The probable cause of attack must be at first considered, and the patient of course removed, as far as possible, the one from the other. A dry, roomy, and well-bedded stall, free from draughts, kept at a uniform temperature, is the most favourable stable for recovery. A stall is advocated, that the patient may be kept from lying in moisture or excreta, which it will generally do in spite of a careful attendant. The surface of the body to be evenly and warmly clothed, the extremities bandaged—an advantage frequently overlooked in the care of bovine animals. If the case is at all severe, hot swabs, or, what is far better, spongio-piline, or poulticine, should be applied to the loins, extending from the dorsal to the sacral region, under, and carefully fixed by, the outer clothing, changing only as often as necessary to keep the skin hot and moist.

I will now follow the local treatment, as applicable to most ordinary cases of any but the catarrhal type. Careful mulsion must be repeated *every two hours*, drawing the milk first from the sound quarters of the gland, in order that the inflamed portion may be more carefully and evenly pressed upon. After as much milk as possible has been removed by the ordinary pressure upon the teats, the whole gland must be pressed from above downwards, in order to squeeze any secreted or effused fluid from the acini into the lactiferous ducts, thence into the galactopherous sinuses. This can best be done by passing one hand firmly up into the lateral division of the udder, the other to cover the outer surface, pressing them downwards firmly and slowly until every particle of fluid is removed; *this process is most essential to success*, as it reduces to a minimum the probability of any acini becoming blocked with caseous clots.

I would now draw attention to a common and injurious practice often resorted to, to effect the removal of fluid from the gland—viz., the use of milking syphons. I venture to state that in no case do they conduce to a favourable issue; indurated glands are generally the result of their use. When a syphon is passed into the galactopherous sinus, the watery, or serous portion of the secretion passes freely enough through the orifice of the in-

strument, but not so with the clots of caseine and fat; these accumulate in the lactiferous ducts, and ultimately block them entirely; the result is invariably an indurated tumefaction of the lobulæ or whole quarter, and its loss, until the product has undergone fatty degeneration and absorption, which means no milk until next period of lactation, and then only an attenuated gland.

When the secretion is withdrawn, as in ordinary mulsion, the fluid assists to "flush out," if I may use the expression, the caseous flocculi, and thus the acini are kept free. If the secretion is thus withdrawn every two hours, no coaguli remain in the gland. I admit the use of the syphon as a preventive of Mammitis, when, as in the early stages of Variola Vaccinia, or contagious or acute simple Eczema, the mammillæ are intensely sore and inflamed; the milk will then flow freely, without subjecting the patient to pain of mulsion. Great care should, however, be taken that the instrument is free from any morbific matter, or it will be a ready means of conducting such into the gland, the probable result being Septic Mammitis.

After the gland has been relieved of the normal milk, thorough fomentation should be carried out for about twenty minutes, before further manipulation is had recourse to, as it greatly relieves the pain and tensity of the udder, which is an important consideration in this most painful disease. After the gland has been carefully dried with a soft cloth, an embrocation, consisting of glycerine in four parts, belladonna extract two parts, should be steadily rubbed, principally into the diseased quarters, but lightly over the whole gland. The glycerine effectually prevents the risk of chill after fomentation; it further softens and comforts the inflamed skin; beyond all this it is a thorough solvent for belladonna, and the combination is thus an advantage over every other medium in applying belladonna. This embrocation is very readily absorbed, and thus the full local physiological action of the drug is obtained, and the result is contraction or occlusion of the alveolar capillaries, and thus a cutting off, or at least a great diminution, of blood flow to the inflamed area. At this stage of the malady, all local stimulating embrocations, especially ammonia or terebinthæ, should be strictly avoided, as should also poulticing or any attempt to

suspend the gland, as advocated by Simonds, Armitage, Steel, and others. Such procedure is simply to court an unfavourable issue. A poultice, to be of any service, must be sustained in perfect contact with the gland. This can only be done by a fair amount of pressure, which must, of necessity, be brought to bear upon the inferior part of udder; the result of this is to squeeze the milk up from the galactopherous sinuses into the lactiferous ducts and acini—the very opposite condition of things it is most desirable and important to obtain. The same objection applies to a suspender over the loins, the use of which I have entirely abandoned. The whole line of treatment I am advocating is to combat the circulation in the inflamed area, sufficiently long to arrest inflammatory action, give rest to the part, and promote absorption. Diminution of blood supply to the udder is further obtained by applying, as before mentioned, hot swabs, poulticine, or spongio-piline to the loins.

In Catarrhal Mammitis, where there is no œdema, heat or pain in the gland, fomentation need not be carried out, but the application of belladonna and glycerine is useful; a case recently under my care, where three quarters had produced nothing but serum for three weeks, recovered under this local treatment, together with internal treatment, to be immediately discussed. Before passing from local remedies, I may mention the intra-mammary injection of atropia, which I have been led to employ from the remarkable results obtained by belladonna, and, if my infantine experience of this remedy is supported by a further series of successes, I shall freely abandon the use of other local agents.

I may suggest to any who will give this treatment a trial, my procedure, which is very simple. After carefully emptying the gland and diseased quarters, as before advised, atropiæ gr. $\frac{1}{5}$ is added to warm milk ʒij, and injected with the syphon syringe (shown) into the galactopherous sinus of the affected quarters. I have met with no success with any other form of intra-mammary injection.

I have little confidence in the treatment of chronic indurated quarters by local stimulants and absorbents, frequently advocated, as a gland in this condition is rarely restored before the next parturition.

Passing on to internal treatment, we must be guided much in this by the form of the malady.

In the early stages of attack, in acute forms, the administration of a mild cathartic is useful, followed through the pyrexial period by febrifuge draughts. The object to be aimed at is the diminution of lactation for a brief period, to attack the cause of systemic disturbance.

I find internally, as externally, no medicinal agent is so effectual in this as belladonna, which has a remarkable power in suppressing the mammary circulation, and thus checking lactation; great care must, however, be taken not to push this drug too far, or the milk will be entirely and permanently suspended. I find solution of belladonnæ extract. in dram doses, once or twice a day, combined with sodæ bicarb. in two-ounce doses, to be all the medicine required until the inflammatory stage is past The soda is most useful in correcting the dyspeptic condition, so frequently accompanying Mammitis; careful dieting is during this period most important, all stimulating or milk-forcing food, such as cake, bean meal, roots, or grains, must be avoided, also large quantities of water or gruels.

Sweet hay, in moderate quantities, with a little bran, is the best food until the inflammatory condition is over; then, with the administration of tonic medicines, such as quinine, carbonate of iron, or liq. arsenicalis, good food may be freely given, to bring up the milk supply and strengthen the weakened gland.

Catarrhal Mammitis is best treated throughout by tonic agents, care being taken to correct any gastric or enteric disturbance.

The case of three weeks' standing, previously mentioned, was treated internally with iron and gentian pulv., in two-dram doses, night and morning, with a liberal supply of cake food.

I presume there are few, if any, present who still advocate the lancet and repeated purgatives in the treatment of local inflammatory conditions; in Mammitis they are strictly to be avoided.

To any who have an extensive experience in the treatment of the malady, may I suggest a fair trial of subcutaneous injections of sulphate of quinine, in conjunction with the internal administration

of belladonna, during the inflammatory stages, especially of the phlegmonous form. This combination has produced great results in Mammitis in human subjects, and is certainly physiologically indicated in bovine cases. Having given it so short a trial, I am unable to speak with any confidence of its probable utility.

In conclusion, I have to thank you for an opportunity of introducing this important subject to our associations, and trust the outcome of our discussion will be commensurate with the valuable time expended.

A CASE OF TUBAL FŒTATION IN A BITCH.

BY J. H. CARTER, M.R.C.V.S., BURNLEY.

THE following remarkable case came under my notice on the twenty-sixth of February last, when I was hastily summoned in the early morning to make a *post-mortem* examination on a mastiff bitch, which had died in a very sudden and unexpected manner during the night, she being apparently in excellent health only a few hours previous to being found quite dead. Owing to death taking place in such a sudden and mysterious manner as related, my first impressions were those of poisoning; but before expressing an opinion to that effect, I made inquiries as to her previous history, and was informed as follows:—The bitch was purchased on the first of July last, and three weeks previous to this date was delivered of three dead pups.

She was again put to the dog on the thirteenth of December, and was again due to pup on the fourteenth of February this year.

She, however, showed no signs of pregnancy, and it was not until the twenty-sixth of February that death took place (just twelve days after she was due to pup). Upon turning the bitch over to examine the external parts of her anatomy, I perceived a most offensive smell, which, upon closer examination, I found emanated from a fluid of a greenish-yellow colour issuing from the vagina. Upon inquiry, I was informed that she had discharged a fluid similar in character *(per vaginam)* for a period of six months or more.

The *post-mortem* appearances were as follows:—

The Lungs (right and left) were very pale, anæmic, and extremely emphysematous, there being dilatation and rupture of the air-cells throughout their entire structure.

The Pericardial Sac contained an abnormal quantity of straw-coloured fluid. The heart itself presented no abnormal feature beyond the right cardiac ventricle being somewhat distended with blood of a dark, tarry consistency.

The Liver was darker and more friable than normal, whilst the gall-bladder was empty.

The Stomach was inflated with gas, and contained foreign substances, such as straw, pieces of wood, etc.

The Intestinal Canal presented inflammatory patches or ecchymoses throughout its whole course, the mucous membrane peeling off readily to the touch, and was in some parts entirely void.

The Bladder was distended with urine, and appeared healthy.

The uterus and left Fallopian tube were the seats of extensive morbid changes.

The Uterus.—This organ was very much distended, and upon laying it open there was revealed a great quantity of purulent matter, which made its escape; the mucous membrane was flabby, pale, and thickened, and had numerous short hairs (of a fawn colour) firmly embedded in its substance. The left Fallopian tube was very much elongated and distended in its centre, resembling somewhat in shape "a diminutive horse's stomach."

Upon opening this distended portion, another quantity of purulent fluid made its escape, along with several bones, all completely ossified, and partially covered with hair (of a fawn colour).

There were six bones in all, four of them being cranial, one humerus, and one sacral.

The mucous membrane lining the tube was very much thickened, corrugated, and deeply grooved, these grooves running parallel to the long axis of the tube. The muscular coats of both vagina and left Fallopian tube were very much hypertrophied. This hypertrophy of muscular tissue may be accounted for in two ways, viz., it may possibly have been produced by irritation and inflammation set up by laceration of the soft parts during the transit of the missing bones. Or

otherwise we may account for it as being an effort of nature to so strengthen these parts as to enable them to expel that which was foreign, and no doubt a source of irritation and trouble to the poor brute. The missing portions of the fœtus must have either become absorbed, or otherwise passed away during the period of the discharge (*per vaginam*) before mentioned. I think this latter hypothesis most probable.

From the condition of the bones found, the fœtus must have reached a high state of development.

In my opinion the fœtus must have been imprisoned in the tube where its few remains were found, for a period of nine months or more, in fact, ever since she was delivered of the three dead pups in June of last year, otherwise how are we to account for this constant purulent discharge which had been noticed for over six months previous to her death?

And then again, this fluid corresponded in character with that found in both uterus and left Fallopian tube.

I think there can be no doubt as to this being a true case of tubal fœtation, and that fecundation took place in that part of the tube where the bones were found.

The question now arises, Which of all these morbid phenomena was the direct cause of death? I shall be pleased to learn the opinion of some of my more learned brother colleagues. In conclusion, I may say that I have never heard of a similar case occurring in the canine species, nor can I find mention of one.

ON BOVINE TEMPERATURES, ETC.

BY HAROLD LEENEY, M.R.C.V.S., EAST GRINSTEAD.

WITH so many contributors giving their averages of normal temperature, it is unnecessary to add mine, as it would only confirm the generally accepted standard, which I have tried on the celebrated shorthorns of the late Sir Curtis Lampson, and other widely differing breeds, to see if breed has much to do with it. What, however, I wish to call attention to is the frequent erroneous diagnoses made through too much importance being given to thermometry.

A short time since, I was consulted about a herd of Sussex bullocks, mostly under two years, and in covered yards; the chaff was adhering to their muzzles, they were dull and constipated, with temperature of 102° to 103·5°. One was as high as 104°, and had been separated for my inspection. Inquiries elicited that much rape-cake was being given, and the taste and smell indicated mustard, which afterwards proved to be present. Advising the discontinuance of rape, the substitution of linseed, and a saline aperient for each beast, I waited the progress of events, when, on going to the farm one day, I met an eminent London F.R.C.V.S., erstwhile an examiner, who had been to see these animals without reference to me, and was on his way back. With some degree of confusion we returned, and placing myself under his authority, I was commanded to keep my thermometer for four minutes in the rectum, and when removed and a temperature of 104° indicated, I was gravely informed that an outbreak of Pleuro-pneumonia might be looked for, segregation of the steer, etc., etc, advised, and an ounce and a half of sodæ sulph. and pot. bicarb. prescribed.

Meeting my client after F.R.C.V.S. had gone, I told him, in answer to his inquiries, that the bullock would die for want of an aperient, and that I should loyally carry out the commands of the Fellow, and wait for the *post-mortem* examination to prove the nature of the case. The bullock died, with perfectly healthy lungs and impaction of omasum, and it was so plain to the owner and stockman that their fears for the herd were dissipated at once, as well as Mr. P.'s confidence in the Fellow. An aperient was administered all round, the cake changed, and the beasts were all doing well in three or four days.

The above shows the fallacy of hasty conclusions and one-sided examinations. This gentleman could have obtained all the necessary information from a more than usually intelligent bailiff, which would have prevented such a ridiculous mistake, but depending on his thermometer and his reputation among horses, he has permanently disgraced himself in the eyes of my client. Is it to be wondered at that farriers live and thrive in close competition with veterinary surgeons? The great majority, I am sure, would have treated such a case successfully, and though they may

know nothing of the chemical composition of cakes, they are practically acquainted with their uses and effects.

Before concluding my remarks on temperature I should like to know if any of my brother practitioners (Fellows or mere members) have met with very high temperatures in Mammitis, as I have recently had two cases in cows indicating a temperature of 109°, and both animals recovered without losing a quarter I had my thermometer tested at the time, as this seemed a very unusual temperature, and I may add fell three degrees in six hours in both cases.

PRESCRIPTIONS FOR GENERAL TUBERCULOSIS AND *TABES MESENTERICA* IN CATTLE.

BY J. BRODIE GRESSWELL, M.R.C.V.S., LOUTH.

HAVING found the following formulæ very useful in the treatment of general Tuberculosis and of *Tabes Mesenterica* in beasts, I venture to submit them to the notice of the readers of the VETERINARY JOURNAL, in the hope that, should any practitioners think well of them, they may receive a more extensive trial.

(1) Creosoti ... ... ℥j
Calcii Sulphitis ... ... ℥ij
Ferri Sulphatis ... ... ℥iij
Pulv. Zingiberis ... ... ℥j
Misci : fiat pulvis.
To be given twice daily in a quart of ale.

(2) Olei Morrhuæ ... ... ℥x
Calcii Sulphitis ... ... ℥iij
Ferri Sulphatis ... ... ℥iij
Liquoris Strychniæ ... ... ℥ij
Misci : fiat haustus.
To be given once or twice daily.

(3) Olei Morrhuæ ... ... ℥viij
Tinctura Gummi Eucalypti ... ℥ss
Calcii Sulphitis ... ... ℥ij
Misci : fiat haustus.
To be given once daily.

This latter is especially beneficial when there is much diarrhœa. I have not as yet administered it nearly so often as the two former prescriptions, but I believe it to be equally if not more efficacious.

Editorial.

THE EXTINCTION OF FOOT-AND-MOUTH DISEASE.

THERE is much reason for congratulation that, in these days of extreme agricultural depression, one of the animal scourges which has done it so much injury for so many years is at last all but, if not completely, extinguished in these kingdoms. Why Foot-and-mouth Disease, Contagious Pleuro-pneumonia, and others of those destructive maladies which owe their existence solely to their infective principle, were not suppressed long ago is one of those questions which can only be answered by first taking cognizance of the state of our knowledge of these maladies when first they began to prevail, the ignorance of the public with regard to them, and the hostility to legislative interference when their nature was subsequently demonstrated and the measures necessary for their limitation indicated, as well as the opposition of those whose interests were supposed to be threatened by restrictive measures, and the apathy of legislators to recognise the grave injury the country was sustaining through the losses and harassment these diseases entailed. Happily, the most troublesome and most infectious of the class, if it is not the most fatal, has been brought near to absolute extinction in the United Kingdom; and there is every reason to hope and believe we shall see no more of it, if once it is fairly cleared out, and no fresh instalment is allowed admission at any of our ports. But this is a matter of the greatest difficulty to prevent, so long as cattle are imported from infected countries, or countries through which infected animals, or their hides, or certain of their products, may pass to reach our shores. In order to be safe in this respect, absolute prohibition of importation from these countries should be rigidly enforced; for slaughter at the place of debarkation is far from ensuring immunity, as experience already testifies. And it must be remembered, too, that perhaps we are not yet completely freed from the infection. Now and again, here and there, at places widely apart, there have been outbreaks which, though apparently the last flickerings of the flame that a short time ago was blazing so extensively and so vividly, show that the embers may yet be smouldering in many places, and, unless carefully watched, might cause a widespread conflagration again. The question of the vitality of the germs of the disease is far from being settled, as we have no definite information as to whether they quickly perish when they are deprived of their proper pabulum—animal fluids and tissues—or whether, like the germs of some other cognate disorders, they may not, when under the influence of favourable circumstances, maintain their vitality—their excessively active germinating properties—for a long period. There are instances recorded (in "Veterinary Sanitary Science and Police," for example) in which fresh outbreaks of the malady have occurred on farms, months after it had been present, and without any possible chance of infection having been introduced from without. The outbreak in Australia some years ago was due, it is supposed, to hay tainted with the virus, which had retained its activity during the time the voyage occupied. In the presence

of these instances—and they are not a few—it would be well to err on the safe side, and to consider the germs as endowed with a considerable amount of vitality. This decision would lead to more care being taken, especially in the matter of thorough cleansing and disinfection of premises, utensils, and everything likely to "harbour" the potent virus. The longer the period that elapses without an invasion of the disease, so the more serious it will be should a fresh instalment of the poison be introduced from abroad, from the greater susceptibility that will have been engendered in the new generations of animals which have never been exposed to its influence, and which will cause the scourge to spread among them like fire over a dry prairie. All the more need, therefore, for the severe exclusive measures, and the establishing of the most perfect suppressive machinery which sanitary science can devise.

Though there is every probability that we have got rid of one of the more serious contagious diseases of animals, it must not be forgotten that our cattle-farm and dairy are not exempted from Contagious Pleuro-pneumonia—a much more fatal and destructive disorder than that we have suppressed, and which yet lingers in a threatening manner in England and Scotland, and, it is surmised, prevails rather extensively in Ireland. A determined effort should now be made to stamp out this dangerous bovine scourge, and so be free from an ever-present danger from a most insidious contagion. Then there is the Swine-plague to be exterminated, and Scabies in sheep, as well as Glanders in horses, and Distemper and Rabies in dogs, as well as Tuberculosis in cattle, which menaces the public health, while it subtracts from the public wealth—all preventable, and only requiring the application and earnest enforcement of well-known sanitary measures to render them as scarce as Foot-and-mouth Disease now is. The veterinary profession has already accomplished much in relieving the public from the injurious operation of contagious diseases among animals; but only a portion of its work in this direction has been accomplished, and it only requires the necessary powers and assistance to entirely eradicate all those disorders which prey upon the health of the domesticated animals, diminish their value to mankind, and may even prejudice human life, and yet owe their maintenance solely to their contagious properties.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

At the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons held on the 30th and 31st March, and the 1st and 2nd April, 1885, the following students from the Royal Veterinary College were admitted members of the profession :—

Mr. W. Brigg	... ...	Nazing, Essex.
„ H. E. C. Selfe	... ...	Blackman Street, Borough.
„ Thos. William Turner	...	Bainham, Thetford.
„ A. E. Richardson	... ...	Burrage Road, Woolwich.
„ F. E. Meek	... ...	Stamford Hill, London.

Mr.	J. S. Vickery	... ...	Kingsbridge, Devon.
„	W. James ...	... ...	Tisbury Road, Brighton.
„	H. G. Rogers	... ...	Brompton Road, S.W.
„	G. E. King...	... ...	Diss, Norfolk.
„	W. Littlewood	... ...	Hempstead, Norfolk.
„	E. R. Ebbetts	... ...	Hanworth, Norfolk.
„	Alfred Cawdle	... ...	Torquay, Devon.
„	W. E. Cawdle	... ...	Torquay, Devon.
„	J. Blakeway	... ...	Stourbridge, Worcestershire.
„	H. Buckingham	... ...	Harleston, Norfolk.
„	H. J. Dawes	... ...	West Bromwich.
„	H. L. Somers	... ...	Brighton.
„	F. C. Mahon	... ..	Southsea.
* „	Austin Peters	... ...	Boston, Mass., U.S.A.
„	E. R. Smythe	... ...	Bracebridge, near Lincoln.
„	C. Winteringham	... ...	Croft, near Darlington.
„	A. Brassington	... ...	Wolverhampton.
„	W. R. Walker	... ...	Plymouth.

The following students passed their *Second Examination* on the 8th, 9th, 10th, and 11th April :—

Mr. A. J. Proctor.
„ F. P. Gooderson.
„ R. Polglase.
„ N. Blancard.
„ F. S. Lucking.
„ F. W. Melhuish.
„ W. J. Hatton.
„ R. W. Dixon.
* „ E. S. Gubbin.
„ C. A. Johns.
* „ L. P. Reas.
„ W. E. Dain.
† „ A. Peale.
* „ E. A. West.

* Mr. C. A. Lye.
„ W. A. Dellagana.
* „ R. A. Philp.
„ T. H. Hobson.
„ W. Rattee.
„ P. G. Bond.
„ T. E. W. Lewis.
„ J. D. Roberts.
„ C. E. D. Dayus.
† „ C. H. T. Bray.
* „ F. Warren.
„ W. T. Wilson.
„ H. N. Carter.

The following students passed their *First Examination* on the 13th April :—

Mr. G. Reddish.
„ C. K. Dobson.
„ W. R. Kennedy.
* „ R. B. Autton.
„ J. H. Bell.

Mr. R. H. Singleton.
„ W. J. Wagstaffe.
„ J. H. Stedstone.
„ W. Sheal.

Examinations in Scotland.

At meetings of the Scottish Section of the Board of Examiners held in Edinburgh and Glasgow on and between April 13th and 29th, the following gentlemen passed their *Final Examination*, and were admitted members of the profession :—

New Veterinary College.

Mr.	R. Rimmer...	... ...	Wigan.
„	T. Shepherd	... ...	Lancaster.
„	R. Porch ...	... ...	Bristol.
„	C. Campbell	... ...	Edinburgh.
„	E. J. Lawson	... ...	Manchester.

Mr.	M. J. O'Carroll	Charleville, Co. Cork.
„	H. Wilkinson	Manchester.
„	G. H. Simpson	Leeds.
„	R. Price	Mold, Flintshire.
„	A. Macarthur	Perth.
„	J. A. Hodgman	Ramsgate, Kent.
„	T. H. Secker	Knaresborough, Yorks.
„	W. Bannatyne	Douglas, Lanarkshire.
„	R. W. Dawtrey	Chichester.
„	J. Purdy	Belfast.
† „	J. C. Robinson	Peterboro.
„	A. Kay	Lochee, Dundee.
„	O. Barrow	Manchester.
„	S. Chambers	Huddersfield.
„	J. Moore	Morpeth.
„	W. Blunt	Lutterworth, Leicestershire.
„	F. W. Kendall	Leeds.
„	W. D. Connochie ...	Selkirk.
„	F. C. Golden	Dudley.
„	D. Charnock	Liverpool.
„	W. Noar	Manchester.

Dick Veterinary College.

Mr.	J. Jeeves	Scarborough.
„	B. O. Meek	Wigan.
„	James Player	Edinburgh.
„	H. F. Rickell	Warter, Yorks.
„	J. Armstrong	Penrith.
„	G. Kinnell	Dumfries.
„	J. S. Lloyd	Oswestry, Salop.
„	W. Tyndall...	Ayton, Yorks.
„	H. Wilkinson	Newcastle.

Glasgow Veterinary College.

Mr.	N. B. Green	Irvine, Ayrshire.
„	Joseph Ward	Manchester.
„	A. Marshall	Glasgow.
„	R. Anderson	Bellshil, Lanarkshire.
„	W. Ward	Manchester.
„	W. Hodgson	Carlisle.
† „	Edwin Sayer	Rainham, Kent.
„	John McKenna	New Galloway, Kirkcudbright.
„	R. S. Mitchell	Islay, Argyleshire.
„	D. McIntyre	Loch Awe, Argyleshire.
„	W. Carruthers	Leshmahagow, Lanarkshire.
„	Daniel Gray	Glasgow.
„	J. A. Cunningham ...	Strathbungo, Renfrewshire.
„	Robert Yates	Glasgow.

The following passed their *Second Examination :—*

New Veterinary College.

Mr. T. W. Dinwoodie.
„ J. Caldecott.
Mr. C. Weatherall.
„ A. Reah.

Mr. J. Ogden.
„ F. Wormald.
„ W. Fletcher.
„ P. Young.
„ F. Armstrong.
„ C. Blackhurst.
„ A. Neish.
„ P. Bell.
„ P. Pike.
„ G. Finlay.

*Mr. T. Atkinson.
„ A. Watson.
„ S. Bradley.
* „ H. Newsome.
* „ M. Cleary.
* „ W. Hall.
* „ J. Buxton.
„ J. Urmson.
† „ T. Bowhill.
„ H. Clarke.

Dick Veterinary College.

Mr. J. Carruthers.
* „ D. Cameron.
„ J. Hall.
„ J. Keane.
„ J. Laughlin.
„ A. Marshall.
„ G. Pearson.
„ E. Watson.
„ A. R. Young.
„ M. Quinn.

Mr. A. Cleasby.
„ H. Drinkwater.
* „ G. Howie.
„ J. Kelly.
„ C. McGregor.
„ J. R. Moir.
„ R. Tibaldi.
* „ W. Weighill.
„ P. Duffy.

Glasgow Veterinary College.

Mr. B. Cook.
„ J. Nicholson.
„ J. McClean.
„ R. Marsh.
„ J. C. Young.
„ J. Gibson.
„ J. M. Crawford.

†Mr. R. Barron.
*„ J. Dawson.
„ R. S. Thompson.
„ R. Clunas.
„ W. H. Dalrymple.
„ J. C. Thompson.
„ R. B. Freeman.

The following passed their *First Examination*:—

New Veterinary College.

Mr. F. Muirhead.
† „ J. Clarkson.
„ G. Radcliffe.

Mr. W. Westgate.
* „ C. Hagleton.

Dick Veterinary College.

Mr. W. Dagg.
„ R. Mylne.
„ W. Day.
„ T. Robson.
„ H. Foulds.
„ W. H. McArthur.

Mr. E. C. Winter.
* „ J. O'Brien.
„ R. Craig.
„ G. Prickett.
„ R. Glaister.

Glasgow Veterinary College.

Mr. J. D. Miller.

R. RUTHERFORD,
Secretary, Board of Examiners (Scottish Section).

* Marked thus passed with "Great Credit."
† Marked thus passed with "Very Great Credit."

GLASGOW VETERINARY COLLEGE.

THE winter session of this institution terminated on 15th April, and on the four following days the oral examinations of the Royal College of Veterinary Surgeons were conducted within the museum of the college. The candidates for diploma were also subjected to a rigid practical examination on horses, cattle, and sheep, selected and brought to the College for that purpose. The Board of Examiners included:—Mr. J. Roalfe Cox, F.R.C.V.S.; Professor Pritchard, M.R.C.V.S.; Professor Duguid, F.R.C.V.S.; and Mr. J. Vaughan, F.R.C.V.S., London; Mr. W. A. Taylor, F.R.C.V.S., Manchester; Mr. George A. Banham, F.R.C.V.S., Cambridge; Mr. C. Cunningham, M.R.C.V.S., Slateford; Mr. Archd. Robinson, M.R.C.V.S., Greenock; Mr. Thomas Campbell, M.R.C.V.S., Kirkcudbright; and Mr. Rutherford, M.R.C.V.S., Edinburgh. The following gentlemen were also present as *ex officio* members:— Principal M'Call, Professors Cooke, Limont, Macqueen, and Renfrew, Glasgow Veterinary College. The following gentlemen were awarded the diploma of the Royal College of Veterinary Surgeons:—

Messrs. Edwin Sayer, Rainham, Kent; John M'Kinna, New Galloway; R. S. Mitchell, Islay; William Carruthers, Lesmahagow; Donald Macintyre, Loch Awe; Robert Anderson, Bellshill; N. B. Green, Irvine; William Ward, Manchester; Joseph Ward, Manchester; Alexander Marshall, Glasgow; William Hodgson, Brigham, Carlisle; John A. Cunningham, Glasgow; Daniel M. Gray, Glasgow; Robert Yates, Glasgow.

The following students presented themselves for the second professional examination, and were successful in passing:—

Messrs. R. Barron, Sutton, near Chester; James Dawson, Cootehill, County Cavan; Benjamin Cook, Swansea, South Wales; John Nicholson, Thornliebank; John M'Clean, Kilcoo, County Down; R. S. Thomson, Kirkwall, Orkney; Richard Marsh, Ballynahinch, County Down; Robert Clunas, Auldearn, Nairn; John C. Young, Glasgow; W. H. Dalrymple, Stranraer; James Gibson, Biggar; Joseph C. Thompson, Londonderry; James M. Crawford, Ayr; and Richard Birt Freeman, Dublin.

Medals granted by the Highland and Agricultural Society of Scotland, the late Professor Allen Thomson, of London, and Principal M'Call, and certificates of merit by the College were awarded in the different branches of study as follows:—

Horse Pathology (written examination), gold medal (Principal M'Call)—Mr. Alex. C. Forbes, Glasgow; silver medal (H. and A. S. of S.)—Mr. Edwin Sayer, Kent; first-class certificates, Messrs. William Ward, Weir, Doyle, Jos. Ward, Cunningham, and Hodgson; second-class certificates, Messrs. Carruthers, Marshall, Green, M'Intyre, M'Kinna, and Ferguson. Cattle pathology (written examination), gold medal (Principal M'Call)—Mr. Edwin Sayer; silver medal (H. and A. S. of S.), Mr. A. C. Forbes; first-class certificates, Messrs. Wm. Ward, Doyle, Weir, Jos. Ward, M'Kinna, and Cunningham; second-class certificates, Messrs. Hodgson, Carnochan, Green, Marshall, M'Intyre, and Carruthers. Practical examination of horses as to soundness, age, operations, etc.—Gold medal (Principal M'Call), Mr. Edwin Sayer. Practical examination of cattle and sheep as to age, soundness, operations, etc.—Gold medal (Principal M'Call), Mr. Edwin Sayer. Morbid Anatomy — First-class certificates, Messrs. Doyle, M'Kinna, Sayer, Jos. Ward, and Hodgson; second-class certificates, Messrs. Gray, Carruthers, Leckie, Reid, and W. Ward. Anatomy (special and comparative)—Silver medal (H. and A. S. of S.), Mr. Robert Barron; first-class certificates, Messrs Marsh and Dawson; second-class certificates, Messrs. Gibson, Dalrymple and Caldwell. Histology and physiology—Silver medal (H. and A. S. of S.)

Mr. James Dawson; first-class certificates, Messrs. Barron, Caldwell, Marsh, and R. Thomson; second-class certificates, Messrs. Gibson, Young, Freeman, and Clunas. Best oral examination on anatomy, physiology, and histology—Gold medal (the late Professor Allen Thomson), Mr. Robert Barron. Mr. Campbell's prize for the best essay on "Tuberculosis" and "Sturdy in Sheep" was awarded to Mr. Edwin Sayer. At the close of the examinations the Secretary of the Board of Examiners intimated that Mr. Dawson had passed with "Great Credit" and Messrs. Sayer and Barron with "Very Great Credit."

NEW VETERINARY COLLEGE, EDINBURGH.

AT the termination of the session, Principal Williams distributed the medals and certificates of merit to the successful students. Principal Williams, in his concluding remarks, trusted that the students about to present themselves for examination would be as successful as the students who had been before the board of examiners. The Principal impressed upon the students that when they commenced to practise for themselves they should be patient, and not go from place to place every few months because they had not got large practices. The following were the prize-takers:—

Pathology of the Horse—Messrs. John Moore, silver medal of the Highland and Agricultural Society; J. A. Robinson, certificate of merit; and S. Chambers, certificate of merit. Pathology of the Ox—Messrs. J. A. Robinson, silver medal of the Highland and Agricultural Society; and John Moore and W. D. Connochie, certificates of merit. Anatomy—Messrs. T. Bowhill, silver medal; and Bradley, Cleary, and Watson, certificates of merit. Physiology—Messrs. J. Cleary, silver medal of the Highland and Agricultural Society; and T. Bowhill, silver medal presented by Mr. D. Hunter—equal; and W. Hall, certificate of merit. Chemistry—Messrs. F. Austenberry, silver medal of the Highland and Agricultural Society; and J. Clarkson, medal presented by Professor M'Adam; £20 prize for last year presented by the Principal, Mr. John Moore; £20 prize for this year, Mr. T. Bowhill. Certificates of merit were awarded to the following gentlemen—Curators of Museum—Messrs. Kay, Robinson, and Moore. Prosectors—Messrs. Somers, Connochie, Rimmer, and Lawson. Dressers, Dispensers, and Visitors—Messrs. Galloway, Barron, Shepherd, Rimmer, Kay, Robinson, Drabble, Secker, Wodyman, Dawtrey, Kayes, Wilkinson, Lawson, Connochie, Anderson, Middlehurst, Noar, Aggio, Porch, Jackson, Bannatyne, Duckworth, Moore, Somers, Chambers, Blomfield, Harris, Allan, M'Arthur, Fenwick, and Simpson. The Highland and Agricultural Society presented a copy of their book on the Agriculture of Scotland to each of the students who obtained certificates of merit for dressing, dispensing, and visiting.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

FORTY-SECOND ANNUAL GENERAL MEETING.

HELD AT THE FIRST AVENUE HOTEL, HOLBORN, MONDAY, MAY 4TH, 1885.

Professor WALLEY, President, in the chair.

THE following gentlemen were present:—Messrs. N. Almond, B. C. Arthur, F. J. Ashley, G. A. Banham, W. G. Baswell, A. W. Barnes, T. Briggs,

A. Broad, J. H. Brown, T. Campbell, B. Cartledge, H. J. Cartwright, H. W. Caton, T. Corby, C. Dayus, E. C. Dray, G. R. Dudgeon, H. Dyer, W. A. Edgar, E. Faulkner, H. Ferguson, J. Fraser, J. M. Gillingham, G. Gray, W. S. Harrison, M. Hack, T. Hopkin, W. Hunting, T. H. Lewis, A. Lawly, A. Lawson, C. Ladds, S. Locke, J. Lambert, H. Lawrence, J. Mackinder, J. Malcolm, J. B. Martin, J. McCall, W. Mole, W. H. More, J. Penberthy, J. Polding, W. Pritchard, W. Reekie, A. E. Richardson, W. Robertson, A. Robinson, F. G. Samson, W. K. Shaw, A. H. Santy, C. Sheather, H. E. C. Selfe, W. Shipley, H. L. Simpson, J. F. Simpson, H. M. Singleton, S. H. Slocock, F. R. Stevens, P. Taylor, W. A. Taylor, I. Vaughan, W. J. Welsby, J. B. Wolstenholme, E. Woodger, J. Woodger, T. Wooff, F. W. Wragg, and the Secretary.

The SECRETARY (Mr. A. W. Hill) read the notice convening the meeting, and the minutes of the last general meeting.

The SECRETARY announced the result of the election of Members of Council to have been as follows :—Professor Walley, 465 ; Messrs. P. Taylor, 414 ; Dray, 374 ; Harpley, 242 ; Mulvey, 241 ; Carter, 240 ; Robinson, 235 ; Blakeway, 226 ; Reynolds, 218 ; Barford, 141 ; Russell, 136 ; Hunting, 135 ; Gresswell, 87 ; of these the first six were elected.

Mr. P. TAYLOR proposed a vote of thanks to the gentlemen who had acted as scrutineers :—Messrs. Dudgeon, Selfe, Singleton, Richardson, Wilkie, Meek, Welsby, Reekie, Rogers, and Farmer.

Mr. DRAY seconded the resolution, which was carried unanimously.

The SECRETARY stated that letters expressing regret at unavoidable absence had been received from Dr. Fleming, Sir Frederick Fitzwygram, and Messrs. Simcocks, Whittle, Perrins, and Harpley.

The reception and adoption of the report and balance-sheet having been unanimously carried, the President declared the report open for discussion.

Mr. OWLES observed that the expenses of the annual meeting last year appeared to be rather higher than usual, namely £22 3s. 6d., and asked the Treasurer to account for that.

The TREASURER (Mr. Dray) said he was not at all surprised that this question had been asked. The following were the items of the account :—Use of principal dining-hall for annual meeting, £4 4s. ; four tickets at 25s. each, £5 ; refreshments for vocalists, 7s. 6d. ; 10s. 6d. for every one less than 45 as arranged, £2 2s. ; supplying vocalists, piano, and refreshments, £10 10s. When the account was brought before the Finance Committee, he protested (as Treasurer) against these charges (hear, hear), and he also protested at the meeting of the Council, and maintained that not a sixpence of the funds of the College should be appropriated for the dinner ; but he was outvoted.

Mr. PRICE thought the report might have been lengthened. With regard to the first paragraph of the report : "The Council has to report that since the last annual meeting 102 students from the different veterinary schools have received the diploma of the Royal College of Veterinary Surgeons," he thought it would be a good thing if the Council would give them a tabulated statement of the results of examinations for, say, ten years, so that the profession might see whether its numbers were increasing or diminishing. With regard to the purchase of the building in Red Lion Square, he congratulated the Council upon having acquired it for so moderate a sum as £2,133, and thought the members ought to congratulate each other that a suitable site had at length been obtained. With regard to the paragraph of the report which stated that the architect had been instructed to prepare plans and furnish estimates for the erection of a new building, he thought that members ought to receive some further communication from the Council with reference to this important subject. Here was a building which was to cost something like £6,000, and no idea was given them as to what the

character of the interior was to be. With regard to the cost of the new building, which was stated would be about £3,500, he could not gather any meaning. If that sum was to include fittings and furniture that was a sufficient explanation. He thought that the Council would have done well to allow the Secretary to remain on the premises, as he had done in the past; and, when he took into consideration that they would have to allow him a suitable sum for a residence elsewhere, he thought that the policy of the Council in that respect might be questioned. The Council expressed a hope that the balance of the amount required for the new building would be liberally subscribed by the profession, and he had no doubt it would be; but he did not think the Council should have stated that if sufficient funds were not subscribed the deficiency would be made good out of the sinking fund. As a matter of business, they should have left that part out, as in that case more subscribers would, no doubt, have been induced to come forward. With regard to the form of the report, whilst generally approving the same, he thought that by numbering the paragraphs it would be a convenience. With regard to the Fellowship degree, he thought it high time that members of the College should take action in this matter. It seemed to him that the business of the profession would be left entirely in the hands of a few Fellows. The gentlemen who were principally making themselves Fellows were gentlemen from the army. Of course, as they had plenty of time on their hand and little or nothing to do, they were in a position to study for the Fellowship degree. As a question of policy, the profession ought no longer to allow that clause in the Charter to exist which provided that no members of the Council should be elected unless Fellows of the Royal College. He thought that members of the profession who were not Fellows might be equally suitable persons to be elected on the Council as were the Fellows.

Mr. HUNTING observed that no subject had lately excited more interest amongst members of the profession than the subject of examinations. A large proportion of the profession believed that the rejection of students lately had been due to their want of practical knowledge. As a matter of fact, it had been nothing of the sort, for the men who had had the privilege of being pupils, and were supposed to have practical knowledge in the largest degree, had been plucked in the largest proportion. It was most important to find out what was wrong, and the only way to do so was, he thought, to appoint a committee to inquire into the matter, and take evidence in the same way that a Parliamentary committee would. The examinations were arranged in such a way that the result was that in the first session the students took up those subjects which they were to be examined upon immediately, and neglected others. In the second session they tried to cram the whole of the anatomy into the one session, which could not be satisfactorily done. With regard to the statement of the last speaker that the candidates for the Fellowship were principally army men, he wished to point out that of three men who had just obtained the Fellowship degree, there were 200 per cent. more practitioners than army men. (Laughter.) With regard to the Fellowship, he thought that members of the profession had no right to grumble at the action of former councils who established the Fellowship in order to raise the status of the profession. The possibility of becoming members of the Council was held out to those who were successful in the examinations, but the standard was too high, and the money cost excessive. Fifteen guineas to a man who had only been five years in practice, and had hardly got the horse by the head, was a large sum of money to part with, and whether a man had attained to the Fellowship degree or not, he thought he had a right to represent, or be represented, on the Council Board, where business habits were as important as scientific attainments or a scholastic

education. There were two ways of getting over the difficulty—one being that the majority of the profession should obtain the Fellowship degree, and the other that the Council should deprive those men who had got it of their just rights, and break the contract which was entered into with them when the Council wasted their time and took their money. He suggested that the examination should be made a little more practical, and that the obstacles to obtaining the Fellowship degree should be removed by postponing the time at which Fellows should come in. There was a decided contract with the Royal College of Veterinary Surgeons which they who were Fellows did not intend to give up, simply because they were told that they were not as good as other men.

Mr. SIMPSON (Maidenhead) referred to the original Charter, which provided for the election of a President, Vice-President, and Members of Council from amongst the members of the said body politic and corporate. Further on, the Council were empowered to alter, suspend, repeal, and make new by-laws, provided that the same were "not repugnant to these presents or the laws of this our realm." Further on, a Supplemental Charter was applied for, in regard to which he would boldly express his opinion that it was illegal. No governing body had the right to make by-laws which would override an Act of Parliament, and he doubted if this body had any right to a Supplemental Charter which contradicted the spirit of the previous one. By what right were members of the profession who obtained their diploma prior to this Supplemental Charter, to be deprived of the rights to which they were entitled when they obtained their diploma? Referring next to the report, which stated that it is "gratifying to know that a larger number of members than usual have entered their names for this degree at the next examination," Mr. Simpson said he wished to be informed as to the extent of the increase.

The SECRETARY stated that the additional number of those who had written for particulars was about nine or ten, of whom several had already declared an intention of entering for the examination, whilst others were still communicating.

Mr. SIMPSON added that it was a mistake to suppose that those who were opposed to Clause 9 of the Supplemental Charter were opposed to the Fellowship degree. He was himself decidedly in favour of the Fellowship degree; but what he was distinctly opposed to was that only Fellows of the College should be elected to the Council, for the reason that privileges were given to the older members when they obtained their diploma, of which the Council had no right to deprive them.

Mr. LAMBERT, Army Veterinary Department, characterised the statement that army veterinary surgeons went in for the Fellowship examination because they had nothing to do as most ungenerous. An army veterinary surgeon often had a great deal to do, being frequently responsible for the health and treatment of from 1000 to 1500 horses. In addition, they had to serve in all climates, and were as much exposed to disease and violent death as any class of men in the army. He himself had frequently to perform 150 operations in one morning when on a campaign. He agreed with what Mr. Hunting said as to the Fellowship, which was a thing which, no doubt, conduced to the progress of the profession.

Mr. OWLES did not think that the fact of a student having been an apprentice was conclusive that he was not rejected in examination for want of practical knowledge. That was a question which the Examiners alone could answer. He agreed that it was very important that some remedy for the existing state of things should be found. He confirmed what had been said as to army veterinary surgeons, having for thirty-two years held the position now held by Mr. Lambert. He really did not find the position such an idle one

and concluded that Mr. Price had really spoken from want of knowledge. He believed it was because the army men were so fully occupied that they were better prepared to undergo the examinations for the Fellowship.

Mr. WILSON (Berkhampstead) observed that the question of the continuance or otherwise of the Fellowship degree was a question of great importance to the profession, but he did not think that they should find fault with the Council now. There were no doubt certain ways in which they could get out of the difficulty, but he protested against their going to the Government and asking them to be good enough to rescind that which they gave them ten years ago. He drew a parallel between the history of this College and the Royal College of Surgeons, and suggested that this College should meet the present difficulty by following in the footsteps of the Royal College of Surgeons, and admitting certain members without examination to Fellowship on payment of a certain fee. He thought that members of good reputation, high moral character, and good standing in the profession might be admitted to be Fellows without detriment.

Mr. BRIGGS pointed out that Members of the Council who were members at the time the Supplemental Charter was obtained, retained their right of election to the Council Board in virtue of their having been Members of the Council at that time. He protested against any rights which he had obtained being taken from him.

Mr. CARTLEDGE observed that there were 121 Fellows of the College, and that it was therefore unlikely that there would be any deadlock for some time to come for want of Fellows.

Mr. HOPKINS hoped that members would look dispassionately at the question of examination, sinking personal feeling, and acting for the welfare of the profession. An easy way out of the difficulty was for members who wished to be on the Council, to come forward and pass the Fellowship degree. The College would resemble children playing in a nursery, if they were now to go to Government and ask them to rescind what they gave such a short time ago. He thought that the present position of affairs ought to be an incentive to members to come forward for the Fellowship degree.

Mr. WOLSTENHOLME stated that the College of Surgeons were agitating amongst themselves for the very alteration which this body was now asking for.

Mr. SIMPSON (Windsor), while in favour of retaining the Fellowship degree, saw a difficulty in carrying on the work of the profession fairly towards individual members under existing circumstances. It was, no doubt, a matter for compromise, for no one would think of taking from members the rights which they had already obtained; and, with a view to the settlement of the question, he would give notice to move, at the next meeting, for the appointment of a committee to inquire into the matter. He could scarcely believe that the Council would unanimously grant him that committee. He would, of course, take care that it should not be composed of Fellows alone, but be of a representative character.

Mr. W. A. TAYLOR rose to support the Council in the action they had already taken with respect to the Fellowship degree. He would suggest that the degree might possibly be made more popular, by reforming the conditions of examination. A reduction might be made in the amount paid for the Fellowship diploma, and those Fellows who had it presented to them without examination ought to have paid more than Fellows who had to undergo examination. The suggestions he was now making emanated from his friend, Mr. Ward, who was also a Fellow by examination. Another suggestion was to localise the examinations, by having them carried on at different centres in the manner of the Oxford and Cambridge Local Examinations; also that the educational test should be abolished where candidates had obtained their diploma prior to the year 1876.

Mr. EDGAR said there were hundreds of men who were fitted to act as Members of the Council or of the Examining Body, and the only objection they had to going up for the Fellowship degree was the fear of rejection. But he would ask whether, in the evening of the nineteenth century, any man who hesitated as to answering a question put to him in examination was fit to occupy a representative position? He would raise his voice against such a feeble action as the rescinding of Clause 9, and with regard to the method adopted by the Examiners of expressing approval of a candidate or the reverse by such expressions as "good," "bad," or "indifferent," he failed to see any reason for departing from the system of marks adopted by other examining bodies.

Professor PRITCHARD then moved the adoption of the report.

Mr. WILSON seconded the motion.

The PRESIDENT said that, before putting the resolution, there were one or two remarks which he wished to make as their President, and also as a summing-up of the various matters which had been touched upon. Mr. Price, who spoke about the length of the report, must be perfectly well aware that the reports of the Council meetings appeared in the professional journals, and he did not think that the Council could be asked to draw out a lengthened report touching upon everything that had been done or said during the past year. As one who had to do with the drawing out of the report, he felt that what was said in the report was sufficient for all practical purposes. There was one thing, however, in which he sympathised with Mr. Price, and that was in thinking that the members should have further information in reference to the building; but the chief points had been mentioned in the circular. However, if any gentleman wished to see those plans, or wished any information in respect to them, he could do so on application to Mr. Hill, who was always ready to supply every information. The sketch that had been sent out, and the few remarks by which it was accompanied, were all that was thought necessary in calling the attention of the profession to the matter. Mr. Price also made a remark about the number of students that were passing each year, and asked to have a tabulated statement. He himself saw no possible objection to this, and he had no doubt that if Mr. Price or any other member of the profession desired such a statement it could readily be obtained; but, as the names of the successful students were always inserted in the professional journals, it was not considered necessary to again mention them in the annual report. With regard to the Secretary's accommodation, the whole question of what the object of the building should be was thoroughly gone into by the House and Building Committee, and with the view of making the building one that would be worthy of the profession, and of providing for everything that could be provided for. It was found that if accommodation for the Secretary were provided, it would cost a vast deal more money. The estimate was for something like £1,500 more, and it was thought that in the present condition of the profession it would be hardly wise to spend more money in building a separate house. Mr. Price also made a remark about the cost of the dinner, and he himself was of opinion with Mr. Dray that nothing should be spent out of the Council moneys for purposes other than those belonging to the work of the Council; in fact, such an expenditure was not likely to arise again. Mr. Hunting had made a remark as to students only studying those subjects in which they were to be examined. He was afraid there was some little truth in that, but perhaps not so much as Mr. Hunting thought. The idle student, doubtless, would not trouble himself about anything that was not directly before him, and would only care for the present; but, on the other hand, he was sure there were many students who did not put off their work in this sort of way, but worked honestly and earnestly from the earliest moment in order to

prepare themselves for examination. With reference to the Fellowship degree, he had quite anticipated that some discussion would take place to-day in connection with that subject. The matter certainly might be viewed in various lights, but he was quite certain of one thing—viz., that when the Council obtained that Supplemental Charter with the object of improving, as they thought at that time, the position of the profession and raising it in the eyes of all educated people, they did not think there would be so few men coming forward for that degree. On looking over the list of Fellows, what did he find? In addition to the hundred original Fellows, there had only been thirty-nine or forty who had passed the examination. Deducting some nineteen men who had died since that Charter was obtained, the number of Fellows remaining was only some 120 or 121. Looking at the matter from this point of view, it did seem remarkable that the profession should be governed by so small a proportion of its members; and a very strong argument had been used by Mr. Simpson, of Maidenhead, in reference to the original rights of the members. He confessed that he had never looked at the matter in that light before, and that there was a great deal in Mr. Simpson's argument. The right of being elected as Members of the Council and as Examiners had been taken from the members and given to the Fellows; but he did not suppose for a moment that those who were in the position of legal advisers to the Council would have allowed a Supplemental Charter to have been obtained in order to override anything, or to suppress anything, which was obtained by a previous Charter. Consequently, he did not think for a moment that the action of the Council was at all illegal, as was suggested by Mr. Simpson. Certainly the matter had never been presented to his mind in that light before; and if the Council found that they had at any time done anything which was illegal or contrary to the rights of any individual, they would, he thought, be very pleased to restore that man's rights. The Council had hoped, after the expiration of such a period as ten years, to have had a larger number of Fellows, but he was not at all surprised at the present time at finding that members felt that the shoe pinched. A good deal had been said about the rights of minorities, and one or two gentlemen, who had on other occasions pooh-poohed minority rights, seemed, now that they were in the minority, to have made a discovery in this direction. He was very pleased that opinions should have been expressed in reference to this matter, and that means had been suggested whereby they might get out of the difficulty. The suggestions which had been made would, no doubt, assist the Council to a very large extent in getting out of the present difficulty. The Council were quite willing to receive any suggestions from the great body of the profession, and to consider these suggestions with a view to giving every member of the profession his due right. With regard to the Building Fund, he wished to point out that in the little sketch which had been sent out it was stated that they were still short of funds, and the profession at large was being appealed to for further support. He rather thought that the subscriptions ought to be small, and that they should be spread over the whole bulk of the profession. He had pleasure to-day in handing to the Secretary two subscriptions of one guinea each, one from his colleague, Professor Baird, and one from Mr. Archibald Baird. He hoped that every member of the profession would, before the building was completed, subscribe according to his means, and not according to what he thought he was called upon to give by reason of his position in the profession. He thought they would have a building of which they need not be ashamed, and which would be useful in the future. He was extremely sorry that the foundation-stone of the building could not be laid that day; but it was found that a great deal of work was involved, and

that it was impossible to make the necessary preparations. He was afraid that there might be some disappointment in consequence, but the foundation-stone would, he hoped, be laid by whoever was President next year. That would form an epoch in their history, and be something to look back upon with pleasure.

The report was then unanimously adopted.

Mr. WILSON proposed, and Mr. HELMORE seconded, a vote of thanks to the Chairman and officers of the Council, and the proceedings terminated.

The members dined together in the evening at the First Avenue Hotel.

WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE Second General Annual Meeting of this Association was held at the Half Moon Hotel, Exeter, on Thursday, March 12th, 1885, J. A. Collings, Esq., President, in the chair.

Messrs. Hoadley and Elder were admitted full members of the Association, and Mr. F. Airey nominated.

Messrs. Broad, of Bath, and Raddall, of Launceston, were unanimously elected honorary associates.

The SECRETARY, in reading the report of last year's work, said that this Association was started on Feb. 7th, 1884, and that the object of the combination was to preserve the good and friendly feeling existing between veterinary surgeons in the district; to protect their political and professional interests; for the discussion of scientific subjects, and by so doing, to place themselves on an equal footing with their professional brethren in other parts of England. At their first meeting, a resolution in favour of the docking of horses by scientific practitioners was passed, and there could be no doubt but that resolution, in conjunction with others passed by similar bodies, was the means of permitting that most useful operation still to be performed. The Society—young as it was—had not been without its losses. It had to record the death of its first President (Mr. T. D. Gregory), and the resigna- of its first Treasurer (Mr. F. Gibbings), and one member, through removal from the neighbourhood. The year's work, however, was a matter for congratulation, and fully justified the establishment of the Association.

The Treasurer's Report showed the Society to be in a good financial position. Both reports were unanimously adopted.

Mr. THOMAS proposed, and Mr. W. Penhale, Jun., seconded, that J. A. Collings, Esq., be re-elected President for the ensuing year.

Mr. COLLINGS said, in accepting the honour the meeting had unanimously conferred upon him, that he hoped the same feeling of loyalty would still exist during the coming year which had existed in the past. He would do all in his power to make the Association a success, and he trusted when the termination of his year of office arrived the members would find no cause to regret the choice they had made that day in selecting him as their President.

Mr. CHASE, in proposing the Vice-Presidents, said this Association was fortunate in having, among its members, several gentlemen of influence and position, and it was greatly to be desired that the officers of an institution like this should be men of good standing; he therefore had much pleasure in proposing the re-election of the retiring Vice-Presidents, viz.:—Messrs. C. Parsons, H. W. Thomas, and T. Olver. Mr. J. P. Heath was also unanimously elected a Vice-President.

Mr. W. Penhale was re-elected Secretary, and Mr. J. H. Elder Treasurer, instead of Mr. Stevens, who resigned on his leaving the neighbourhood.

A letter was read from the Royal Counties Veterinary Medical Association, calling attention to the fact that Clause IX. of the Supplementary Charter,

unless rescinded, would come into operation in 1886. This Clause entitles Fellows only to be elected to the Council of the Royal College of Veterinary Surgeons.

The SECRETARY remarked that the matter was one of very grave importance, affecting, as it did, the whole representation of members of the Royal College of Veterinary Surgeons. The Fellows were in a very small minority, and it was scarcely fair that they should have the sole power of governing so important a body. No one would deny but there were many very capable Fellows sitting on the Council, filling their offices, he believed, to the entire satisfaction of the profession, but this equally applied to the members. It was, however, quite possible that a Fellow might offer himself and be elected who, whilst being a highly scientific man, might be totally ignorant and incapable of understanding and discharging the duties of a councilman. On the other hand, it was a well-known fact that we have in our midst plenty of members who are in every sense well qualified to undertake and fulfil all the duties appertaining to the Council with the greatest ability All he claimed was an equality ; let Fellows and members stand on the same footing in the transaction of business relating to the profession. He had no wish to disparage or reproach the honour which was undoubtedly attached to a Fellow, but he thought the Fellows themselves must now confess that the degree had not been clamoured for as they anticipated, when it was first created, and when this clause was granted, about ten years ago. The Fellowship in point of numbers being a failure, and all the foremost men in the profession having refused to have the degree, he claimed that it was only right the clause should be abolished. To allow a small number of Fellows to sit and govern an important body would, to his mind, be a retrograde step and an anomaly ; it would show a want of public spirit on the part of the profession to matters inseparable from its own vitality, and, through lack of interest in its own government, would ultimately lead to its disintegration and utter ruin.

Mr. ELDER proposed, and Mr. HEATH seconded, that the following resolution be sent to the President of the Royal College of Veterinary Surgeons: —"That it is absolutely necessary for the welfare and encouragement of the Members of the Royal College of Veterinary Surgeons that they have free and unlimited choice in the selection of members of the Profession to serve on the Council. The members of this Association therefore petition the President and Members of the Council to take the necessary steps to have rescinded Clause IX. of the Supplementary Charter granted by Her Majesty the Queen on the 23rd day of August, 1876."

Mr. THOMAS then read a very able and highly practical paper on

"*Diseases of the Horse's Foot.*"

The paper dealt mainly with Laminitis, Navicular Disease, Seedy Toe, Thrush, Canker, Corns, and Sandcrack.

In commencing his paper, Mr. THOMAS said : "No foot no horse" was the subject of an essay he once heard read, and he thought it aptly applies in in this instance, for without good feet the most valuable animal may be rendered useless. The owner and the veterinary surgeon often have to suffer at the hands of the shoeing-smith, from bad-fitting and nailing on of the shoes, as when a nail driven too closely is drawn back and driven again, and it behoves all young practitioners, when cases of obscure lameness are brought for their inspection, to more frequently have the shoes removed in their presence. He had had horses brought to him which he considered lame in the foot, and on mentioning it to the grooms who brought them, the usual reply was : "Oh, sir, the shoe was removed yesterday, and the foot was all right ;" but on having the shoes removed by my own smith, have found positive cause for lameness. The smith who previously removed the shoe, probably

in trying the foot did not use enough pressure with the pincers to cause the animal to evince pain, so that he may mislead the groom, fearing to expose the true cause—a nail driven too close or high –lest it may bring trouble on himself. He had known instances of horses having been pricked, the shoe removed by the smith who shod him, the nail driven again in the same hole, and the horse sent away with the message, "There's nothing wrong in the foot," when a few days after great pain and lameness come on, and an issue of matter from the coronet takes place. Shoeing-smiths in large towns are great bugbears to the veterinary surgeon; they will do all they can to hide their shortcomings and malign the veterinary surgeon if he exposes their carelessness. He had known them blister the coronet, leave off the shoes, and tell the owner in their language "The horse has sprained the coffin-joint!" trusting to the blister and rest that the foot, mutilated by bad shoeing, will come right again.

Laminitis, or inflammation of the sensitive laminæ or sole, is met with under three forms—acute, sub-acute, and chronic. The causes of this disease are various, such as bad shoeing, over-paring the feet, fast driving on hard roads (especially if the animal be unfit), inaction from standing a long time in one position, over-feeding on heating food (as maize or wheat), sudden chill or metastasis.

Horses short of work, in plethoric condition, and those with flat feet and thin soles, are the more predisposed. The symptoms are well known to all, and need but little mention:—there is the slow and painful progression at starting, the animal placing the heel on the ground first, the hind legs placed forward under the body, heat, throbbing plantar arteries. When all four feet are affected, the pain is most acute; the animal stands with all four legs in a heap, lifting up one hind foot and then the other in great pain; the fever is very great; pulse and temperature very high. In some cases, if seen early and treatment adopted, it may pass off as a slight congestive attack, or if the inflammation be severe and early relief is not afforded, structural change takes place, rendering the animal almost useless for some time for road-work. He found great difficulty in inducing exercise, as recommended by Mr. Broad; he had the shoes removed, bled freely from the coronet, and applied hot poultices to relieve the distended vessels, gave a full dose of physic, with Tinct. Aconite and Pot. Nit. as a febrifuge, and if the pain be very severe, subcutaneous injection of morphia will give relief. When the pain and fever have somewhat subsided, he had the shoes recommended by Mr. Broad tacked on, ordered frequent exercise and cold applications to the feet, stood the patient in a cold water bath or clay puddle if possible. The acute form sometimes passes off, leaving but little structural change if the treatment be early adopted, but when neglected it leads to exudation between the horny and sensitive laminæ. The natural glutinous secretion from the vascular laminæ which holds together that and the horny laminæ being suspended causes a separation and descent of the pedal bone, and sometimes ossification and suppuration of the sensitive laminæ takes place (mostly at the coronet); the same thing happens between the vascular and horny sole, leaving a hollow space and, as sequelæ, seedy toe and pumiced soles. For the chronic form there is no treatment more effectual than Mr. Broad's shoe, the heel of the foot to be kept low and the toe shortened, repeated blisters to the coronets, and allow a long run on a wet pasture.

Corns are shown by a bloodstain between the bar and inflexure of the wall forming the heel of the foot, and are results of a bruise to the sensitive sole and extravasation of blood from the part. It occurs in the forefeet and, in nearly every instance, to the inside heel. It is more frequently found in feet with low heels and in high-actioned horses and is the result of bad shoeing from uneven pressure of the shoe. Once a corn always a corn, but good

shoeing will keep off all mischief as regards lameness. A corn may, if early attended to, be a source of very little inconvenience ; but if the cause remains in operation and the horse worked on, suppuration takes place, frequently breaking out at the coronet, sometimes ending in a horn tumour and disease of the pedal bone. If it is a severe case with pain and lameness remove the shoe, pare the heel, giving exit to any pus that may be formed, apply hot poultices, and give a dose of physic. Careful shoeing and not allowing the shoes to be too long worn are essential in keeping the animal to work and free from lameness.

Mr. CHATE did not agree with Mr. Thomas in saying "once a corn, always a corn." He had a pony now in his possession which once had a corn, but was now quite free from it, and its foot was perfectly healthy. He, however, made it a rule to disqualify all horses, as being unsound, which suffered from corns, no matter how slight, for if bad shoeing were continued on the merest bruise a bad and troublesome corn would be the result.

Mr. COLLINGS said by removing the cause, you might remove the corn, but the tissues never quite acquire their original condition. He had stripped the sole in four cases of canker, but considered it a cruel and horrible operation. The after-treatment, too, was so long and expensive that he thought, on grounds both of humanity and economy, it was far better to save the animal from so torturing an operation by shooting him. He did not quite agree with Professor Axe's opinion as to the parasitic origin of Seedy Toe ; he should stick to his old theory that it was due to a separation of the horny fibres from concussion, until there was more proof of the disease being the work of parasites. Where there is a dropping of the sole in these cases, treatment by paring the wall is useless.

Mr. HEATH, in speaking of Laminitis, thought nothing would restore circulation quicker than walking. Bleeding from the coronets was the nearest approach to nature's own remedy for relieving the congestion, and was the means of frequently preventing exudation. He believed the disease to be very often due to a rheumatoid diathesis of the system, consequently he employed salicylic acid for its treatment with very great success. In the treatment of canker, he had seen good results from the application of nitric acid and pressure to the frog ; this, as a rule, would get rid of the fungoid growth. In reference to corns, if the bruise were slight and could be cut out by paring, he did not consider it an unsoundness, but if there was an alteration of structure of the hoof it was never restored again. For sandcracks, he was a great advocate for applying stimulating applications to the coronets, to bring about a healthy and vigorous secretion of horn. He was against the theory of parasitic origin of Seedy Toe, for the disease was confined to carriage-horses, whose feet were kept free from dirt. Parasites rarely existed where there was an absence of filth.

Mr. STEVENS said he had seen no treatment so successful for sandcrack as that adopted by Mr. South, of Bond Street, which consisted in the removal of a portion of the wall on each side of the fissure, and the introduction of a well-fitted piece of wood into the aperture, which was maintained in its place by rivets.

Mr. W. PENHALE, Jun., thought that in the earlier stages of navicular disease a cure was often effected by setoning the frog and applying blisters to the coronet, he had even resorted to firing with a great deal of success. In Laminitis, if the animal can be induced to take gentle exercise without too much coercion, he always adopted it, and that too with benefit. His plan of treatment was, in the very acute stage, to supply the feet with plenty of moisture in the shape of poultices, and as soon as the pain had disappeared to put on the Broad shoe and allow exercise. He thought the fact of Prof. Axe having found parasites in the *débris* coming from a horse's foot affected

with Seedy Toe, a strong proof in the favour of the parasitic origin of the disease. The peculiar construction of the head of the parasite also showed it was capable of destroying horny fibre.

A hearty vote of thanks was given Mr. Thomas for his valuable and instructive paper.

It was resolved to hold the next meeting in Exeter, on the second Thursday in October.

W. PENHALE, *Hon. Sec.*

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 363.)

Mr. SIMPSON (Windsor) said if he spoke in favour of the resolution it might be thought that he was somewhat selfish, and desirous of retaining a seat which, under the present rules, he could not retain after next year; but he did not think the retention of a Fellowship degree was much business of theirs now. The thing was done, and let those who valued the honour of being Fellows by all means enjoy it. His own idea, when he was asked about a Fellowship, was first to see the company he was going to keep; and he must say that he thought the clause, which enabled so many men to be "pitched in" as Fellows, was too wide. It let too many in; and young men who were looking about to see how they could raise themselves in the profession did not feel that they could do so by associating themselves with many who were enjoying the Fellowship degree because they had been fifteen years in practice. (Hear, hear.) He was not speaking disparagingly of many who were Fellows, but of others who were elected simply because they had been that time in the profession. Unless the Fellowship degree gave additional status it was not worth the fifteen guineas they had to pay for it. (Hear, hear.) Of course there were so many Fellows, and there they would remain; but he had tried to look a little further ahead even than his brother or their Treasurer, viz., to fifteen years from the start. At the present rate there would then have been not more than seventy men examined for the Fellowship degree, and not more than half would be eligible for Members of Council, or thirty-five to select from, *plus* the men who were put on because they had served fifteen years, and who would then have served at least thirty years. Could they consent to that? (No!) If they did not agitate now, they clearly must submit to that hereafter. He did not think any Fellow on the Council who had given the matter consideration could take any other view than their worthy Fellow, Mr. Lepper, had taken that day; and he believed that if the matter was represented to the Council some steps would be taken. (Hear, hear.) Some steps must be taken to do justice to the very large majority of the profession. (Applause.) Nowadays, in imperial matters we went in for direct representation of the masses; but their Council were going to do the very opposite, and limit their selections of men to a very few, instead of the members being able to select from the whole profession. Nine-tenths or more would be barred from being Examiners or from being Members of the Council, if the clause stood. He thought the suggestion that other associations should be communicated with a good one, because then the general feeling would be ascertained. (Hear, hear.)

Professor PRITCHARD, having been asked by the Chairman to speak, said he did not know that he could add anything to what had been said, beyond that he had always felt the clause a most cruel thing. He was on the Council Board at the time, and he was one of those fortunate individuals the law did not reach. Only that morning he was in conversation with one of the Members of the Council who was bound to retire, and advised him to take no notice of it. He really thought that this, although it was in their Charter, was beyond th

appeal to the law. He should not advise this association to fight a battle of that kind, but he thought the Act of Parliament should be repealed. (Hear, hear.) It was absurd that any rule of that kind should have been made. With a little more consideration, Mr. Simpson might have reduced the number of those eligible for seats down to about fifteen, and it was absurd that a profession like theirs, with over 2,700 members, should have a Council elected from such a small number. (Hear, hear.) He should support the resolution in every possible way he could. (Applause.)

Mr. BARFORD most heartily endorsed the resolution. He did not feel justified, after thirty years' practice, to sacrifice his time in "working up" for another examination, and he should only be too glad, as one of the Vice-Presidents for this year, if the resolution should come before the Council Board when he was present to give it his strenuous and utmost support. (Applause.) Now came in the value of the veterinary medical associations. Let them look at the constitution of the Council at the present time. Ten years ago there were probably not half-a-dozen provincial practitioners on the Board, and now there were about half-and-half; that result being due entirely to the united and strenuous efforts and co-operation of one association with the other—north, south, east, and west—to endeavour, if possible, to send the *most* distinguished members of their profession to that Council Board. (Hear, hear.) That was a matter in which he felt most strongly that every association should be invited to co-operate with them; and he believed that if the matter were put properly before the Council, some steps would be taken to remedy the present very glaring defect. (Hear, hear.)

Mr. WRAGG disagreed very much at first with another degree having been created in their profession. They would have been much better off if they had had only one examination to pass; but the Fellowship degree had been created, and he thought they ought to ask themselves, before passing that resolution, what effect it would have on the public if they asked the Council to nullify one of the clauses in the Charter? Would it do the profession any harm? He was rather inclined to think that if they showed the public they were not capable of passing that examination, which, he thought, must be a simple one, as he understood only one man had been rejected out of thirty-eight, it would do the profession some little harm with the public. He did not mean to be shut out of Council on account of that Fellowship degree, and if he could pass the examination he thought there were very few men in the profession who could not do likewise. (Laughter.)

The PRESIDENT, in summing up the debate, said he thought Mr. Kidd's resolution well worthy the consideration of every member of the profession. The injustice complained of had not, in his opinion, been done intentionally, for he had no doubt the primary idea was that the majority of members would flock in for examination for the Fellowship degree; but many of them had not been able to leave their practices in order to take up that degree. (Hear, hear.) Under the circumstances, he thought the only means of remedying the mischief was that they should communicate with each of the societies in existence in the country, and then see what steps should be taken with regard to getting the clause repealed. (Hear, hear.) It must be very gratifying to them to feel that of the four Members of the Council present that day three heartily supported the alteration proposed, while the fourth probably did not mean what he said about going up for examination. (Mr. Wragg: Yes.) Whether Mr. Wragg went up for his examination or whether he did not, they would not find a more ardent supporter of the proposal to repeal the clause. (Applause.)

The resolution was then put and carried unanimously.

Mr. SIMPSON moved, and Mr. IRVING seconded, "That the Secretary be requested to inform the other veterinary associations in the kingdom that

this association has approved the foregoing resolution, and to request their serious consideration of the subject at their next meeting," which was also unanimously agreed to.

The PRESIDENT then delivered the inaugural address, as follows :—

He began by thanking the members for the honour they had conferred upon him by electing him President of that association, a distinction of which he had the more reason to be proud, seeing that as far as actual practice was concerned, he had severed his connection with the profession. He relied on the kind assistance of all the members to make his year of office a pleasant and useful one, and trusted that when he handed the reins to his successor, the society might be in even a more prosperous condition than it was at the present time. In the autumn of 1883 it was suggested by five or six well-known members of the profession that a circular should be issued asking the opinion of leading veterinarians as to the advisableness of starting such an association. Favourable replies having been received, a meeting was called in November, and the association was established ; and it was a proof that it was appreciated by the profession that they already had forty-two members on the books, besides hon. associates, and had to their credit in the bank the sum of £33 3s. Having referred in feeling terms to the death during the year of one of their members (Mr. Ripon), Mr. Flanagan said the objects for which the association was established were, the elevation of the profession ; the promotion of a good and friendly understanding amongst its members ; the supervision and protection of professional interests ; and the discussion of scientific subjects relating to the theory and practice of veterinary medicine and surgery ; and went on to show the manner in which those objects had up to the present been carried out. At the meeting at Oxford last July, Mr. Walker read a very interesting paper on "Docking Horses, and the Abuses connected therewith"; the opinion of the meeting being that the operation should only be performed, in the interests of humanity, by properly qualified men. In November the society met at Aylesbury, when they were entertained with lavish hospitality by Mr. Lepper, and when Mr. James Simpson, of Maidenhead, read a valuable paper on "Would Government Assistance in Breeding Horses tend to encourage Horse-breeding in this country?" The subject was handled by the essayist in a careful manner, and he showed by statistics that the great want appeared to be the distribution by Government throughout the country of sound and useful stallions, for the use of small landowners and tenant farmers, at a low fee. Mr. Simpson then enumerated the systems adopted by many of the European Powers, and showed that our deficiency of horses for military purposes was a national disgrace. He thought that, with our peculiar facilities for breeding horses, it was scandalous that any Government should not be in a position to find one horse for every man in the cavalry regiments for immediate use, instead of being compelled to go into the market for supplies, even for service during the annual autumn manœuvres. (Applause.) The social feeling of the members of that association must be considerably strengthened by meeting for friendly intercourse and scientific discussion ; and he could honestly say that the renewal of old friendships with former fellow-pupils and teachers of the Royal Veterinary College would amply repay him for any time, care, or anxiety that might arise in the time he should have the honour of being their President. (Applause.) Having referred to the great improvement that had taken place in the condition of the profession during the last thirty years, he said that the improvements made should only act as stepping-stones to the further elevation of the status of the profession, in which all its members might assist, by attending to their duties with punctuality and zeal, studying in every way the interest of their employers, and doing all that science and practical skill could do to alleviate the sufferings of the animals entrusted to their care. (Applause.)

Mr. BARFORD moved a vote of thanks to the President for his very excellent address, which he was sure had been cordially appreciated by every member. (Hear, hear.) He was sure the society never took a wiser or more prudent step than when they selected Mr. Flanagan as President, and that gentleman must feel pleasure and pride in following so eminent and distinguished a man as Mr. Lepper. (Applause.)

Professor PRITCHARD seconded the resolution, observing that Mr. Flanagan. had, unfortunately for the profession, separated himself from them professionally, but he continued to regard those who were obliged to work in it with warm sympathy. (Applause.)

The vote having been carried with acclamation,

Mr. FLANAGAN thanked them most heartily for their vote, and also for putting him in the position he occupied. (Applause.)

This terminated the business of the meeting.

Afterwards, the members present and some friends enjoyed a very excellent dinner at the Great Western Hotel, the wines being supplied at the cost of the President.

H. KIDD, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

QUARTERLY MEETING, HELD MONDAY, DECEMBER 29TH, 1884, AT THE BLACKFRIARS HOTEL, MANCHESTER.

Present: Peter Taylor, Esq., President, in the Chair; Professor Axe, Messrs. Thos. Greaves, Wm. Whittle, Wm. Woods, W. A. Taylor, S. Locke, Jno. Lawson, T. Hopkin, E. Faulkner, G. Morgan, J. S. Hurndall, J. W. Ingram, A. M. Michaelis, J. Marshall, Wm. Dacre, Jas. Lambert, H. Ferguson, A. New, Alexander Lawson, Jos. Abson, T. Briggs, and J. B. Wolstenholme, members. Also visitors: Messrs. J. M. Axe, Harrison, Race, MacRaith, Rimmell, and two other gentlemen.

The letters of excuse were read, also the minutes of last meeting, which were confirmed.

Messrs. James Haslam, M.R.C.V.S., Manchester, Frederick Proctor, M.R.C.V.S., Manchester, and H. Darwell, M.R.C.V.S., Bedford Leigh, were elected members of the association.

The treasurer made his annual report, and brought forward the illuminated letters of condolence to Miss Taylor and Mrs. Simpson.

The election of officers for the ensuing year then took place, with the following result:—

President: Mr. Samuel Locke, Manchester. Vice-Presidents: Messrs. P. Taylor, *ex officio*; Jas. Lambert, A.V.D.; Edwin Faulkner. Treasurer: Mr. Thos. Briggs, re-elected. Secretary: Mr. J. B. Wolstenholme, re-elected.

The removal from our number, by death, of Mr. M. J. Roberts, of Manchester, and Mr. William Leather, of Liverpool, was announced to the meeting, and received with deep sorrow. It was resolved that an illuminated letter of condolence be forwarded to their respective families, as a mark of the esteem in which we held our late friends.

Professor AXE then read the following paper on

Azoturia.

After briefly considering the history of the disease, the known conditions of its origin, and the symptoms of the affection, he said:—I now come to that part of the subject concerning which my observations and conclusions depart from those now accepted and taught by the most enlightened of English veterinarians. The pathology of the malady under consideration has been variously stated, but it was not until the publication of Professor Williams' able work on "The Principles and Practice of Veterinary Medicine,"

that any doctrine was made known which could be accepted by the profession as a reasonably reliable one. Since that time, several works on equine medicine have issued from the press, and all concur in the views enunciated by the gentleman named. That this should be so, is not strange to those who have watched the unquestioning faith and complacent satisfaction with which veterinary writers accept an easy solution of difficult pathological problems. I have stated elsewhere, that the teachings of the present in regard to this affection are based on purely theoretical grounds, and rest rather on physiological possibilities than on pathological data, and notwithstanding that objection has been taken to the statement, I venture to believe that it fairly represents our present position.

The term "Azoturia" was first employed to designate a disease of the human subject, in which the urine becomes distinctly charged with an excess of urea, both relative and absolute. The disorder is further characterised by flatulence, acidity, and general gastro-intestinal derangement, as well as considerable nervousness, premature fatigue, pain in the back, with a constant desire to micturate. The affection is of an abiding nature, and one of the essentials of treatment is a generous and nutritious diet. Now it would be idle to attempt to assimilate the disease in question with Azoturia of man, seeing that the main features of the one are entirely wanting in the other, and that the alimentary conditions to which the former has been referred are precisely those prescribed for the cure of the latter. In Azoturia of man there is no discoloration of the urine, no muscular spasm or paralysis, no asphyxia or diaphoresis, no albuminous urine—indeed, there is an entire absence of everything of preponderating importance to the assimilation of the two affections. In referring to the pathology of the disorder, Professor Williams says, "It is a hypernitrogenous condition of the blood, due to over-feeding and want of exercise. The excessive secretion of urine and excretion of urea being physiological results due to the presence of effete products, metamorphoses of nitrogenous food in the blood. It seems necessary that some degree of muscular exercise be performed, and the only way in which I can account for this, is that the blood before exercise contains a superabundant quantity of albumin unappropriated by the tissues, and that the exercise, by increasing the rapidity of the circulation and the respiratory movements, induces a rapid oxidation of such superabundant albumin, whereby it is transformed into urea, hippuric acid, etc., with which the blood becomes overloaded and the kidneys stimulated to excrete what is proving deleterious. The presence of such effete materials in the circulation provokes tonic spasm of the muscles, loss of motor power, tetanic convulsions—and death." Now this view of the pathology of the affection is clearly based on the theory that the formation of urea is increased by physical exertion, and that the *circulating albumin* undergoes direct oxidation, both of which conclusions are directly opposed to the teachings of physiology. Moreover, the statement that the phenomena exhibited during the course of the disease are the outcome of a superabundance of urea in the blood, stands confronted by overwhelming evidence to the contrary. In this connection we have the experiments of Bichat and Gaspard, Todd, Vanquelin, Frerichs, Bernard, and Barreswell, all of which concur to show that the toxic consequences once attributed to the presence of urea have no foundation in fact. But granting, for the sake of argument, that the case were otherwise, is it consistent with what is known of the formation and elimination of urea, that in the brief period of time which elapses between the commencement of physical exertion and the outbreak of the disorder, that such an amount of this compound can be formed and accumulated as to prove destructive of life in the presence of uninterrupted renal activity? To me it appears altogether unintelligible, and cannot be conceded without landing us in insuperable difficulties. Now

with regard to the superabundance of albumin in the blood, there is one fact, and one only, that lends considerable support to the conjecture, but that fact is denied both by Professor Williams and Professor Robertson. I allude now to the presence of albumin in the urine. It is well known to physiologists that the kidneys are the organs by which any marked excess of albumin is eliminated from the blood, and my experience of this disease has been to find albumin in the urine whenever I have sought for it. I am, therefore, ready to allow the possible existence of a superabundance of this element as a part of the pathological condition.

After some further remarks on the physiological aspect of the question, Professor Axe continued :—I now come to the consideration of the condition and composition of the urinary secretion. Referring to this part of the subject, Professor Williams observes: "In no instance is there blood in the urine. . . . In every case its specific gravity is much increased—1·185 or higher. Boiled, the urine gives no reaction, except that ammoniacal gas is emitted. Tested with nitric acid it almost becomes solid, but the solidity is not due to coagulation of albumin, but to the precipitation of crystals of nitrate of urea in great abundance."

The observations of Professor Robertson are much to the same point. He says: "In density the urine is generally high. The colour has often been regarded as due to blood, or the colouring matter of blood. Examination with the microscope, however, fails to detect the existence of either entire or broken-up blood globules. The solidification which the urine undergoes on the addition of nitric acid, which has often been deemed indicative of albumin, is so far a mistake, being due evidently to the formation in excess of nitrate of urea, and the absence of albumin is further confirmed by the non-coagulation of the liquid on the application of heat. It is to the dark-coloured urea, or rather the salts of urea, that the urine in bulk owes its alteration in colour, rather than to the colouring matter of the blood." For myself, I have simply to say that my observations are wholly at variance with those of the authorities quoted. With regard to the colour of the urine, it is not a little strange that hitherto no real attempt has been made to account for its anomalous condition, and it must be obvious that no explanation of the pathology of the affection can be considered acceptable that does not afford an ample and unequivocal solution of this question. To me it appears of the highest importance to the inquiry, and will probably be found to furnish the key to a correct pathological formula. It is singularly unfortunate that the discoloration should have been referred to urea or the nitrate of urea, seeing that both these substances are quite colourless, and cannot therefore be held responsible for the change. My own observations and experiments lead me to a very definite conclusion, namely, that the morbid hue of the urinary secretion is due to the colouring matter of the blood. This conclusion has been forced upon me again and again by every appropriate chemical test, and considerable support has been given to it by the finding of iron in the urine, and I make no doubt that spectroscopic analysis will confirm the result at which I have arrived. If this be true, as I believe it to be, then we have distinct evidence of hæmal changes. Whether those changes refer to an actual solution of the red corpuscular elements, or to a morbid diffusibility of the hæmoglobin, remains to be shown. In reference to albumin, I have always found it uniformly present, but according to the analyses to which I will now ask your attention, I have no reason to regard urea as existing in material excess.

Microscopic examination does not reveal any indication of organic renal changes, but I believe I am right in the belief that the ammonium-magnesium-phosphate is increased, and the calcium-carbonate diminished. As to the specific gravity, I may say that in my experience, it has ranged from 1015 to 1035.

Analysis of Urine in Health.

Three samples of urine were taken from three mares, and yielded respectively the following proportions of urea :—

1st sample	...	...	...	...	11·9	parts per	1000.
2nd „	...	...	...	...	12·4	„	„
3rd „	...	...	...	...	11·38	„	„

When treated with peroxide of hydrogen and tincture of guiacum, they gave no coloration, showing the absence of blood; when a small quantity of blood was added to the urine, the hydrogen peroxide and guiacum gave a distinct blue coloration.

Analysis of Urine in Azoturia.

On Wednesday, June the 13th, a portion of urine removed from a bay cart-mare suffering from "Azoturia," was submitted for analysis.

Physical Characters.—Colour in bulk, chocolate brown ; viewed in a test tube, bright red, transparent, somewhat thicker than water ; a small amount of granular matter visible in suspension. Specific gravity 1015. To test paper, it gave a distinctly alkaline reaction. On the addition of nitric acid, there was no effervescence. On being heated, a flocculent precipitate of albumin was thrown down. A portion of the urine was taken and tested by the guiacum test previously employed for the healthy urine, when a beautiful blue coloration was produced, indicating the presence of blood. A portion of blood from the same animal afforded the same reaction.

The total solids were equal to 30·36 parts per thousand, and were of a bright red hue, due to the presence of the colouring matter of the blood, and were estimated, according to Neubauer's process, "Zeitschrift für Analatische Chemie," ii., p. 166. The urea was estimated by Russell and West's process.

The ash or total saline matter was found to be equal to 4·61 parts per thousand.

The ash contained a very large amount of iron, probably derived from the constituents of the blood.

The ammonia was estimated by Shlösing's method, and found to be equal to ·0039453 parts of urea per thousand.

Proportion of chief constituents in 1000 *parts.*

Water...	969·64
Urea	11·59
Ash	4·61
Hippuric acid, extractives, blood, and other matters	14·16
	1000·00

Professor AXE concluded by saying that the Manchester and other kindred societies possess the means and the power to do great and lasting good, both to themselves and to science, and he urged the desirability of organising a research fund for the purpose of settling questions of an intricate nature, whereas, in the present case, such divergent views were held by members of the profession on matters of pathological interest and importance. He hoped the President would use his powerful influence to bring about this much-needed and laudable help to the advancement of comparative medicine.

Messrs. PETER TAYLOR, THOS. GREAVES, T. HOPKIN, JAS. LAMBERT, JOHN LAWSON, GEO. MORGAN, JOS. ABSON, W. DACRE, J. S. HURNDALL, and WM. WOODS spoke on the subject; then the Professor replied, and the discussion ended by giving the essayist a hearty vote of thanks.

ANNUAL MEETING, HELD FRIDAY, FEBRUARY 13th, 1885, AT THE GROSVENOR HOTEL, MANCHESTER.

Present:—Samuel Locke, Esq., President, in the Chair; also Professor Williams, Messrs. Peter Taylor, Thos. Greaves, Richard Roberts, Alexander Lawson, W. A. Taylor, Wm. Broughton, Jos. S. Carter, E. Faulkner, J. S. Hurndall, J. W. T. Moore, E. Kitchen, T. Hopkin, Jno. Lawson, Thos. Briggs, H. Ferguson, J. D. Allman, J. Bunnell, A. H. Darwell, R. Herbert, T. E. Horrocks, A. M. Michaelis, Dr. Priestly, Dr. Wood, Messrs. J. B. Taylor, J. W. Ingram, J. B. Polding, and J. B. Wolstenholme.

Letters of excuse were received from Sir F. Fitzwygram, M.P., Dr. Fleming, Professors McCall, Walley, Axe, and Robertson, also forty-eight other friends.

It was resolved that P. Taylor, Esq., Manchester, be our candidate for a seat in Council R.C.V.S., as he retires this year by rotation, and a hearty vote of thanks was accorded him for his services to the Society and profession during his term of office.

The PRESIDENT then read the following inaugural address, to which Mr. GREAVES spoke, and concluded by moving, "That our best thanks be given the President for the good practical sentiments of his address." This was seconded by Mr. PETER TAYLOR, who referred to the ability, energy, and perseverance of our respected head, and the resolution was carried unanimously.

President's Inaugural Address.

Gentlemen,—My first duty in assuming the presidential chair is to thank the members of the Lancashire Veterinary Medical Association for the honour they have done me in unanimously electing me to so dignified a position, and to assure you that no effort on my part shall be wanting in furthering the interests of this old and influential Association, and of the profession to which we have the honour to belong.

It was with great diffidence on my part that I accepted the post, feeling that I was not competent. As you are all aware I have not that gift of speech, nor the happy knack of placing my words, or of explaining my ideas, which come so naturally to a great number of members present, and which is very essential in a person aspiring to such a post. I, therefore, crave your indulgent assistance and support, by regular attendance at the meetings, and by joining heartily in the ordinary business of the Society, and in the discussion of subjects brought forward, and I hope at the expiration of my year of office, that I may retire with a full conviction that this Society has not in any way deteriorated, and that I have given you satisfaction.

I am very sorry to hear that the Principal Veterinary Surgeon to the Army, Dr. Fleming, is suffering from a severe mental shock. I feel sure you will all heartily join with me in wishing him a complete and speedy return to his usual vigorous health.

This Association is now in its twenty-fourth year, and is one of, if not the oldest of its kind. In looking over the list of members some twenty years ago, we find the names of veterans who have done a good deal in raising the status of the profession in Manchester and Lancashire, viz., Lawsons, Haycock, Taylors, Greaves, Howell, Woods, and a number of others; and it speaks volumes for this Society when we can say that all those that it hath pleased God to spare are still members, some of whom I see around this table to-night. Long may they be spared to further their good work, to help the younger branches with their presence and support, ever ready to give freely of that store of practical knowledge which time alone can give.

The Society has passed through many vicissitudes, had many trials; hard and strong words have been hurled at times by one professional brother against another; but thanks to the judicious management and

work of its officers, and those deeply concerned in the Society, these clouds have all blown away, and none being the worse for a free and open discussion of subjects which, when kept to ourselves, very often rankle deeply in our hearts and engender strife, and by so doing tend to weaken any society and cause its downfall. I would, therefore, advise those who have, or fancy they have, any cause to make him feel offended, injured, or alarmed, by any word or action of a brother practitioner, to bring his case before his veterinary brethren assembled at these meetings, and let them judge between the two, and I feel sure the advice given would be sound, and no doubt the matter would, ere the meeting close, be amicably settled.

The elder members of our society are still expected to uphold the dignity and the status of the profession; the eyes of the public, and we who are interested, are upon them. Whatever they do, either professionally or otherwise, ought to be straightforward and honourable, always having in mind that great virtue, charity, especially with regard to the younger members. Remember, we all have to live, and it is a much harder struggle in the present age to gain a position and a competent living than it was twenty years ago. Therefore never fail to give a helping hand when the opportunity occurs.

To the younger members I would say: Be diligent, be moderate in all things; endeavour to be in the right place when wanted; and when cases are entrusted to you, give them all the care and attention they deserve; by so doing, you will gain the respect and confidence of your employer, and in time success is sure to crown your efforts.

Our society is strong in numbers, but still there are a good many in the suburbs of Manchester that I would like to see at these meetings; then again we have a fair number of members who attend very badly, perhaps give us a look up at the annual meeting, and ignore the business one. This ought not to be. Why this apathy? Of course I am now alluding to those members who live within easy distance of our place of meeting.

The penal Act, or, legally speaking, the Veterinary Surgeons Act, 1881, has now become firmly established, and, like all other great measures of progress and reform, it produces for a time an amount of evil consequences, that permanent good may ensue. Many of the registered practitioners are men with their wits about them, and they use their newly-acquired rights in many cases to the detriment of the duly-qualified practitioner; but it was quite time that such an Act was passed, as it seems before the penal Act of 1881 we duly-qualified veterinary surgeons, by charter, had not the exclusive right of calling ourselves veterinary surgeons, as there was no law to prevent any one adopting the title. The Royal College of Veterinary Surgeons is now recognised and legalized by Act of Parliament, and brought into direct communication with the Government, and this is of very great advantage.

While on this subject, gentlemen, I would draw your attention to the answer given by the editor of THE VETERINARY JOURNAL, to a question made by "Justitia" in the January number of this year. The question is as follows: Is a registered practitioner justified in calling himself a "Veterinary Surgeon" in a witness-box in a court of law? The answer is: The law does not prevent a registered (existing) practitioner calling himself a veterinary surgeon. This does not coincide with my idea of the reading of the Act, and ought not to go before the public without question.

Clause XVI. of the Act says: "if after the passing of this Act any person not being a fellow or a member of the Royal College of Veterinary Surgeons, takes or uses any name, title, addition or description, by means of initials or letters placed after his name, or otherwise stating or implying that he is a fellow or a member of the Royal College of Veterinary Surgeons, he shall be liable to a fine not exceeding £20." Now, I take it, by the reading of this clause

that neither an existing practitioner, nor anybody else, can legally call himself, either in or out of court, a veterinary surgeon.

As you are all aware, the National Veterinary Association held a most successful meeting last year in the Victoria University in this city ; we felt it to be an honour that Manchester should be the place selected in which the Society held its second meeting, and the Lancashire Veterinary Association felt the more pleased as this Society furnished the President for that year, in our friend and colleague, Mr. Thomas Greaves The Association seems to be now firmly established, due in a great measure at first to the perseverance of Dr. Fleming and several other gentlemen, with the cordial support of the various Veterinary Medical Associations. I hope its meetings will always be a success, and receive the support of every member of the profession. Its course of proceedings are on the same lines as the British Medical Association, and it is an evidence that our profession is endeavouring to improve its position.

I am pleased to hear that at last we are to have a building in London, as our head-quarters, worthy of the profession. Some £8,000 is to be spent in erecting new offices, etc., on the site of the old premises in Red Lion-square, and when finished, our members of Council will have that convenience accorded them which is only their due. What could be more derogatory to any profession, to have been all these years compelled to meet in such a place as the late building, and it savours very much of an insult to members of Council, after electing them, to allow them to pay their own expenses, and send them to deliberate and legislate for us in such a place. I am sure the expense the Royal College of Veterinary Surgeons will be put to in the above endeavours will greatly cripple them in a financial point of view for some years. It is a great pity that the Government cannot see their way to help us in some manner. I feel sure the influential deputation that waited upon Earl Spencer, K.G., to urge our claims upon the Government, pleaded our cause with the very best ability. No doubt it may bear fruit, especially when they see we are endeavouring to improve and help ourselves.

The great and burning question of the day, I mean with regard to veterinary politics, is the examination of the student. You all know full well that a large percentage have been lately rejected, especially for their final. Now, gentlemen, what is the cause? There must be some reason. We hear of principals of colleges and professors speaking in not very complimentary terms of the Examiners, that they demand too high a standard of proficiency, too extensive a knowledge of each particular science, etc., etc. With all due deference to the opinion of the professors, I do not think this can be so. No doubt the examinations are more stringent than they were some eight or ten years ago ; but we are all supposed to be advancing, both in education and scientific attainments, the student especially ; has he not every facility given him at college to attain that standard which is expected of him ? and we have it on good authority, that the students of the present day are well up, and at least equal to the candidates for medical degrees ; and if found to be so at their examination, surely they will have justice done them, and get such marks that would ensure their passing. This is so, and is borne out by the fact that a very large percentage pass the first and second examination, which is principally theoretical.

I think the remarks made in the introductory lectures at two of our Scotch Colleges, at the opening of the present session, to be very injudicious ; they could do no possible good, but liable to produce a great deal of harm, as they would no doubt bias the minds of a great many of the students against the Examiners. The Council board was the place for the professors to have brought forward their grievance ; they are members of that body, and could easily have done so. I feel sure the Examiners as a body conscientiously

endeavour to do their duty, both to the student, the profession, and to the public. Of course they are but human, and may at times err; but who of us is perfect?

There is no doubt, from what we read and hear on all sides, and even see with our own eyes, the generality of students of the present day are lacking in that very essential portion of their profession, viz., practical knowledge. The Council of the Royal College of Veterinary Surgeons are alive to this fact, and the examiners are determined that the students shall possess a fair practical examination before receiving their diploma; and we, as a body, ought to support them in their laudable undertaking.

And now, gentlemen, allow me to thank you for your kind and patient hearing to my few and disjointed remarks on the subjects of the day, hoping I have given offence to no one, as none was intended.

The members and friends afterwards dined together, and a most enjoyable evening was spent. JNO. B. WOLSTENHOLME, *Hon. Secretary.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

(*Continued from p.* 349.)

ABORTION IN COWS.

The PRESIDENT said:—We will now turn our attention to one of the most important subjects touching our domesticated animals. We have had our flocks and herds decimated by different infectious diseases, but I think that abortion is causing more harm and more loss to agriculturists and, indirectly, to the consumer than any other. That being so, I hope we shall have a good discussion on the paper that Professor Williams is to read to us.

Professor WILLIAMS, who was received with applause, said:— I do not propose to read a paper to you on this subject. I simply wish to make a few remarks introductory to a discussion on this very important matter. First of all, I have divided the subject into three heads, and I will deal with it entirely as it occurs in cattle. I shall make no reference to ewes. In the first place I have to deal with abortion from accidental causes; and it may occur from any accident, such as a fall, a blow, or any interference with the animal. The excitement of fear often induces it. I will tell you an experience of my own in regard to abortion. I bought a cow for the students, and they endeavoured to discover whether she was in calf or not. They exercised so much violence in their investigation that the cow slipped her calf during the next night. You have also the influence of fear, which is a very prolific source of abortion. Then, of course, such diseases as Foot-and-mouth Disease, Tuberculosis, Diarrhœa, or any medicine or disease that acts violently on the bowels, will induce abortion. Purgatives by stimulating peristaltic action excite a contractile action of the uterus, and abortion may ensue. When once even an accidental abortion has taken place in a herd of cattle, what may be called an epidemic of abortion may set in, and one after another, perhaps the majority, or all the cattle in the place will abort. The question here is, How does this come about? Roloff, Haubner, Bouley, Franck, and other Continental observers are of opinion that a micro-organism similar to *Leptothrix Buccalis*, or that found in the mucous membrane of the mouth, is found in the discharge from the vagina. This, they believe, increases towards the parturient period, becomes very numerous in the discharges from the vagina of the cow as she approaches parturition, becomes infective and spreads the contagion. This organism is always found on the membrane of the vulva, and is supposed to induce decomposition of the fœtal membranes. By smearing the vagina of a pregnant cow with the dis-

charges of an aborted cow, or expelled fœtal membranes, abortion has been induced by Roloff, and he is of opinion that he has ascertained that it is induced by something which finds its way to the uterus through the vagina, and that infective matters are found on the articles soiled by an aborted cow, as well as in litter. He also believes that he has found that the accident always occurs in byres where the drain is small, and where there is insufficient fall for the excreta, and where the hind quarters of the cattle are readily soiled. The fœtal membranes are generally retained for a time; and some maintain that the putrefactive products evolved from their decomposition cause abortion, and believe this to be due to the entrance of these into the vagina. Others think that the infection is conveyed through the air into the lungs and thus infects the cattle. I am of opinion, gentlemen, that this view of the matter held by the Continental veterinaries is defective, because if there were a micro-organism operating, as they believe, on the fœtal membranes, these would be found dead and decomposed at the period of abortion. But you are aware that the fœtal membranes are, as a rule, not decomposed; are retained, and generally expelled only when they have undergone decomposition, and that there is a smell from these fœtal membranes. I will not assert that the entrance of organisms, arising from this decomposition, into the fœtal membranes of another animal may not induce the abortion of a cow which has been in contact with an aborted cow; but in the great majority of cows, the fœtus is dead, and undergoing putrefaction before being expelled, and that, before expulsion, we find that the fœtal membranes are retained for a considerable time. If the entrance of the organism through the vagina on to the fœtal membranes of the pregnant animal were the cause of abortion, we should certainly find the fœtal membranes in a state of decomposition or degeneration before the cow had aborted, and that the death of the fœtus would be due to the degeneration of the fœtal membranes, the fœtus itself coming away, not dead, as is generally the case now, but either very lately dead or altogether alive. This fact, therefore, forces us to the conclusion that when an exceptional abortion occurs, it may—in fact, it becomes—infective, by what would be looked upon as being the sympathetic influence of the smell arising from the decomposing fœtal membranes and discharges from the vagina. The very fact that there is an animal in the throes of labour in the byre excites the sympathy of the surrounding animals; and if, in addition to this sympathetic feeling, we have a smell from these fœtal membranes, the blood of the pregnant animals becomes altered, and, as a consequence, the calves die. A very little matter is sufficient to induce the death of the fœtus. Koch has proved that it is not necessary to have an organism to destroy life. By creating a stink—if I may so term it—by making beef tea, and exposing it to the ordinary atmosphere for four or five weeks, and using it for the purpose of inoculation, destroying life without producing an organism in the body of the animal, by applying it in the ordinary method of inoculation. Death in such cases is considered to be due to the peculiar poison, Sepsin, which is perfectly independent of the micro-organisms contained in the beef tea. The inhalation of putrid matter by cows in cohabitation with an aborted cow, is sufficient to induce such an alteration in the blood of that animal as even to cause death to the fœtus. I cannot, therefore, accept this theory of the entrance of a micro-organism into the vagina of a pregnant animal through the vulva as a cause of abortion, or as being the cause of the spread of the disease. I look upon the spread of abortion as a result of an influence upon imagination, or upon the blood by smell. In proof of this, I know of a case in which abortion occurs to the cows of a nobleman in the south of Scotland. This has occurred only since he built some kennels for his foxhounds near the byres. The smell of the meat, etc., from the kennels, has had this effect. Prior to the kennels being built, abortion among the cows

was not known, but since, a great majority of this nobleman's cattle abort every year. The next cause of abortion to which I shall refer is high feeding and want of exercise. This, undoubtedly, induces abortion The influence of high feeding on the digestive apparatus is to cause it to become disordered, and then, there ensues a malcondition of the blood, and in the majority of these cases the blood of the animals is found to be altered in its constitution and aplastic. Animals stimulated with a high diet, and never or scarcely ever having any exercise, have also in some degree a plethoric condition of the uterus, or congestions leading to slight extravasations between the maternal surface and fœtal membranes. The fœtal membranes then become detached, and begin to degenerate. Again, the detachment of the fœtal membranes from the mother will cause a loss of nutritious supply to the fœtus. There is an insufficient quantity of blood sent to the fœtus, and, as a consequence of this lack of blood supply, the fœtus dies, and abortion is induced. We know that in the human female abortion is looked upon very often as being due to fatty degeneration of the fœtal membranes, owing to imperfect, insufficient, or improper supply of blood. I am of opinion that high feeding of cattle, inducing a plethoric condition of the mucous membranes of the uterus, and by bringing about the detachment of the fœtal membranes, causes abortion. In the second place, when the blood is aplastic, it contains too few of the elements which gives it plasticity, and, as a result, the fœtal membranes, as well as the fœtus itself, suffers from an insufficient or improper supply of blood, and there is a tendency to abortion. I would now call your attention to the effects of the use of ergotised food. This matter should be carefully investigated. I may also state that many compound cakes as made now-a-days are very impure. You will find, if you mix a certain quantity of cake in a little warm water, that in the course of a *minute or two*, it is swarming with micro-organisms. The bad condition of the blood of cows, no doubt, is in many cases brought about by the entrance of these organisms into the system. A remarkable fact in connection with this matter was revealed in New Zealand, where, until 1875, abortion was unknown. In that year, however, rye grass being introduced, and it becoming ergotised, abortion became prevalent, and there was tremendous loss in consequence all over the colony. It is also well worth considering what influence such food as frosted turnips has upon the animal. During wet or damp seasons, too, abortion is much more prevalent than during dry ones, and those interested should endeavour to investigate this subject. There is another thing which some of you may look upon as an absurdity, but which I regard as one of the influences that induce abortion. We find, particularly in cows that are very highly fed, that they suffer from irritation of the throat, arising, most probably, from a condition of indigestion which causes a long powerful cough, a cough which sometimes causes expulsion of fœces and urine. In some of these cases, where there is this condition of the blood, that very act of coughing may be sufficient to detach some of the fœtal membranes, and thus be one of the causes of abortion.

In conclusion, gentlemen, we are reminded, first, that abortion occurs from an accident. Accidental abortion will occur, no matter how careful we may be. When such a case has happened in a byre, although arising from a mere accident, that abortion once established may be sufficient to spread through the whole, or the great majority of the cows in the byre. Next we have abortion caused by infection or sympathetic influence; and, thirdly, abortion caused by the effects of improper food and water. I have drawn your attention to these causes of abortion in the hope that you may investigate them, and take measures to prevent as far as possible the prevalence of abortion in the North of England.

The PRESIDENT then invited discussion upon the subject.

Mr. CLEMENT STEPHENSON (Newcastle) said :—The subject we have before us to-day is one of national, I may, I think, say universal importance; it is one that hitherto has received little or no special attention, and as a natural consequence is to a considerable extent shrouded in mystery. As most of you know, I am a breeder of pedigree cattle. Like other breeders, I have had some experience of abortion in my herd. I have had isolated cases, and one season the whole of my cows aborted, and as a consequence my attention has been particularly drawn to the subject. There is not, that I am aware of, any reliable work that can be consulted upon it; but breeders and herdsmen have all, to some extent, settled opinions regarding it, and knowing that abortion was extremely prevalent in certain districts in Scotland, it was with the view of getting the subject ventilated and investigated that I addressed my first notes to the *Aberdeen Free Press*; and I am delighted to find that it is now likely to receive the attention which it deserves. In taking a general view of this subject, we must remember that all domesticated cattle are kept more or less in an artificial, therefore unnatural condition—a condition which favours both functional and structural changes. They are necessarily kept in, and surrounded by conditions far removed from natural. They are fed with artificial stimulating foods; even the grass and hay they consume is in many cases produced by stimulating chemical compounds. They are often short of air space, and the air is often impure, and loaded with exhalations from drains, manure, and other decomposing material; while as to water, any stream, pond, or pump, however polluted, and whatever its source, is thought by some to be good enough for cattle. I admit that in many herds great attention is paid to cleanliness, ventilation, and pure water, but to these important factors there is also needed a close adherence to the laws of nature. Occasional isolated cases of abortion are of themselves of little importance, it is the serious results of which they are only the forerunner that most occupies the attention of breeders. These isolated cases may be due to many causes; some to be traced clearly, others beyond tracing. Accidents, sudden excitement, cows bulling upon each other, railway journeys, indigestion, an irregular state of the bowels, and certain diseases, are amongst common causes. Occasionally, as in my own herd, a number of cows or even the whole of the pregnant animals in a herd will abort within a few days of each other, due to one common cause; in my case it was drinking water impregnated with sewage. Tuberculosis is a primary cause. This may be objected to by some, and I admit that tubercular cows do unfortunately often go on breeding for years; but my experience is, that once the uterus or its appendages becomes implicated, the animal becomes a confirmed buller. On the other hand, if it is the kidneys or peritoneum that is affected, then the animal only comes in use at irregular and long intervals. When abortion becomes frequent in a herd or locality, and is not due to one common cause, it is, in my opinion, due to sympathetic action set up by unhealthy uterine discharges. We all know how sensitive the sympathies of animals are, how easily and quickly they are excited; and that the sympathies are stimulated by certain smells there can be no doubt. In the lower animals the organ of smell is developed to a degree of acuteness that only a close observer can form an approximate idea. With them smelling does the work of hands and voice. See how carefully and inquisitively a new companion, a fresh herdsman, a stranger, some alteration to their box or field, their food, or some object they have not seen before, is felt and smelt at until their curiosity is satisfied. That the uterine discharges of animals have some special scent only recognisable by members of their own species is evident. Every one has observed with what keenness a herd of cattle will smell and follow one of their companions when œstrum is about to come on, while when it is fully developed the whole herd becomes completely demoralised.

If, then, the natural, healthy uterine secretion produces for a given time so much effect, is it not natural to believe that the unclean discharges following abortion, or its consequences, must have a more or less corresponding effect, especially upon pregant animals? That special contagious and fatal diseases are caused by uterine discharges is well known. As examples of this I need only name Puerperal Fever, and the disease known as straining in ewes. Of abortion due to ergotised grass or hay I have no personal experience; but knowing the medicinal properties of ergot, it is natural to believe that under certain circumstances it does produce abortion. Still, I confess that if ergot is the frequent cause that it is said by many to be, I fail to understand how it is that in the well-known disease of ergotism abortion is not the first and leading symptom. In Quain's Dictionary of Medicine, 1882, under the heading ergotism, the writer, Dr. J. Mitchell Bruce, after describing the nature and symptoms of the disease, which are of a very serious character, and have been regularly and exclusively traced to the use of articles of food made from rye-meal contaminated with ergot, says, "abortion does not appear to be of frequent occurrence." In the report issued by the United States Agricultural Department, 1884, there is a very full report of an extensive outbreak of ergotism. The disease was at first thought to be Foot-and-mouth Disease, and caused great excitement in the country, hundreds of animals were affected, most of them lost their feet, several lost half a leg, and some part of their tail. Notwithstanding the frightful character of this disease, the only notice of abortion is this, that in seven herds within a radius of four miles six abortions were reported; and again it is reported as a matter of great interest connected with the subject, that there had been a great number of abortions amongst mares, and more cases of difficult parturition than was ever known before. Whilst I am quoting from American authorities, I will direct your attention to the 1883 report of their agricultural department. On page 63, I find the following report supplied by D. E. Salmon, D.V., under the heading, "Prevention of the *enzootic* abortion of dairy cows." He says: "This disease, which evidently depends upon some form of contagion for its causation, has been estimated to produce an annual loss in the States of New York alone of several millions of dollars. At present the affection is widely distributed over the country, and if the estimates in regard to New York were not greatly exaggerated the annual loss from this source must be equal to or greater than from any other disease. The dairymen have settled down to the conclusion that nothing can be done to check this scourge, and they dislike so much to have its presence in their dairies known that the public hears little in regard to it. If, as seems likely from our general knowledge of the contagia, the germs of this disease are first scattered upon the stable floors and upon the grounds where the cattle run, to be taken into the system by soiled food, by the dust which rises and floats in the air, or in some similar way, then a thorough and continuous disinfection of the stables and runs should have a very marked effect in controlling it. In one rather large and plainly infected herd I put this idea into practice with the happiest results—the disinfectant being a one per cent. solution of sulphuric acid. It is very desirable that this trouble should be thoroughly investigated, with a view of revealing its cause, and the best disinfectants that are applicable as its treatment. There certainly is no disease of our domesticated animals in which the probabilities are better for valuable practical results." You will observe that this writer adopts the germ theory exclusively. I cannot follow him in this. I believe that what is known as septic, or putrefactive germs, play their part in this disease as in many others; but that is as far as I can go at present, and I have yet to learn that abortion is due to a special and distinct germ. In a letter to the *Aberdeen Free Press*, on February 19th, upon this subject, Mr. J. Hunter, V.S.,

of Skene, says :—"I recommend that all cows, even in the natural act of calving, should have a separate loose box. The peculiar, sensitive, sympathetic, imitative temperament of many cows must be quite apparent to every observant practitioner. Besides, many a cow, other than the mother, falls in love with the newly-dropped infant calf, and commences lowing and twisting about in such a fashion as at times brings on premature labour. A facsimile of the powerful influence of mere imitation may be seen in the human subject in yawning and in certain other ways." Now, knowing as we do that cows when at liberty isolate themselves and hide their calves for a certain time, Mr. Hunter's remarks are worthy of attention. Since they appeared I have made inquiries, and have heard of one case where premature birth was brought on evidently by the calving of another cow. There is another point I wish to bring before you, namely, to what extent may a bull be blamable for abortion. I have heard of cases in which a number of cows and heifers have broken service after being settled in calf to some particular bull, going say eight, nine, or ten weeks and no longer, and in which the bull was clearly traced to be at fault. Great damage is often caused in a herd by allowing a bull to serve cows or heifers that are not in a natural, healthy, breeding condition. Animals in which œstrum is irregular, or that have the slightest unnatural discharge from the uterus or vagina, should never be served. Service so intensifies the diseased condition that it may prevent the animal ever breeding again. The bull, too, is seriously injured, and becomes a direct medium of spreading the disease to the other cows he is put to. Cows, after abortion, come quickly in use; but they must not be served. Miss them twice or thrice, and only serve them when they are perfectly clean and regular. All that I have said respecting the cleanliness of the cow is equally applicable to the bull, and must be attended to. Be sure the bull is clean and healthy, and do not use him except to cows that are in a natural, healthy, breeding condition. If it is desirable to try doubtful breeders, do not use the stock bull, but some young and less valuable animal. I will now, as briefly as possible, indicate my opinion as to the best means of combating this disease. Our breeding animals should be kept in as near a state of natural life as possible; pure air, pure water, wholesome food apportioned and varied, according to the bodily condition of the animals, and the breeding state they are in. Exercise is most important, and, if possible, should be allowed every day, even in winter. Cleanliness, both in the byres, folds, and fields, is all important. A sharp look-out must be kept for decomposing, putrid, or other offending matter, which must be effectually destroyed. There should be a free and continuous use of disinfectants. Everything must be carried out on the antiseptic principle. Should a case of abortion occur—and it may, under the best arrangements—remove and isolate the cow as perfectly as possible from her fellows; destroy the aborted calf, membranes, and discharges as quickly as possible. Disinfect and keep on disinfecting the place where the abortion took place, and the cow herself in her seclusion. Have the air saturated with the disinfectant. In the absence of recognised disinfectants, use lime freely. I use *Sanitas*, and with good results. Never serve an animal unless she is all right. Keep all doubtful breeders, bullers, and those from which there is the slightest unnatural uterine discharge isolated, well away from regular breeders, and if they are not likely to soon get right, quit them at once. They are dangerous animals to hold. Do not serve too soon after calving; it is better to miss them the first time. I have endeavoured to treat this subject from the farmer and breeder's point of view, leaving the scientific, physiological portion of it in the able hands of my friend, Professor Williams. There are other important questions, part and parcel of the subject, which require consideration, namely, those important diseases of the uterus and vagina,

known and classed by the sister profession under the head of gynœcology, and which I hope will be brought before us at some of our future meetings.

Mr. HENRY HUNTER (Newcastle) said he thought they would all be pretty well agreed—he was himself convinced—that they need not seek for any specific germ as the cause of abortion. He quite agreed with Professor Williams and Mr. Stephenson when these referred to effects of smell of decayed membranes and of excitement as quite sufficient to account for it.

Mr. MCGREGOR (Bedlington) said that he thought that Tuberculosis was a likely cause of abortion. He had had a good deal of experience in these matters. In one byre of which he knew, twenty or thirty cows—or about three-fourths of the stock—aborted for two or three years in succession. They were all served by the same bull, and it was supposed that the cause was the quality of water from pits supplied to them. The water, as far as he could see, was not bad. The few calves that came to maturity proved to be tubercular. The bull was dispensed with, and after that some of the cows that were left were served by a new bull, and did not abort. It was proved afterwards, on a *post-mortem* examination, that the first bull had Tuberculosis. It was a highly-bred shorthorn bull.

The PRESIDENT said:—I reside in the town, and seldom come across these cases. It strikes me, however, very forcibly, that in all these outbreaks of abortion that the cause should, if possible, be found out. We ought, in all these cases, to have the affected animals removed, as far as possible, from the other stock; and we ought also to have the fœtus, and all the fœtal membranes, carried away and buried, in some place out of the way of any watercourse, and out of the reach of anything likely to be contaminated. Another thing to be done is to remove the herdsman. There is no doubt that these men, by working among the cattle, their clothes become contaminated with the fœtal discharges, and so spread the mischief to healthy cows. I would suggest that the men should be put under the same restrictions as were issued recently by the Veterinary Department of the Privy Council with regard to the Contagious Diseases (Animals) Act. I think that we, as practical veterinary surgeons, should see when outbreaks of abortion take place, that all these precautions are attended to. As a rule, we find that most men are very careless with regard to seeing that our orders are carried out. In one case of abortion that came under my notice last year, I was surprised to find that they had taken the aborted calf out of the field, and put it into the centre of the manure heap beside the onstead. If the calf had been allowed to remain there, it might have been a source of a great deal of evil. I had the fœtus exhumed and buried, the place strewed with quicklime and disinfectants, and no other case followed. As I have said, I have had very little experience with regard to this important subject; but I am sure there are many country practitioners here who may be able to give us some important information with regard to the prevention of abortion.

Mr. DUDGEON (Sunderland) said he had not seen any of these outbreaks of abortion, but he felt indebted to Professor Williams for addressing them on the subject. They all knew how ready that gentleman was to respond to the invitations of societies. He had also to thank Mr. Stephenson for the plain and practical remarks he had made on the matter. He thought there was a very great deal in what Professor Williams had said as to the food of the animals. As to Mr. Stephenson's suggestion, that all animals nearing parturition should be put in a box by themselves, it was, in many cases, impossible to do it. There must be some cause of abortion outbreaks, beyond the influence of sympathy, through the sets of parturition taking place in the same byre, because they knew that there must be thousands of byres where the cows were allowed to calve regularly, and where no case of

abortion occurred. There was often the exciting cause, but no case of abortion as the result. Of course they knew that smells and other things excited animals under those conditions. There must be something very peculiar in the condition of an animal which causes it to abort. He thought that when the matter was thoroughly investigated, it would be found that the feeding of the animals—especially with artificial cakes and ergotised food—had a great deal to do with outbreaks of abortion.

Mr. PEELE (Durham) had with much pleasure and instruction listened to the able addresses of Professor Williams and his friend Mr. C. Stephenson. In his practice he had met with cases of abortion. He remembered one case of *enzootic* abortion, where the disease had been going on for a considerable time. The animals were constantly slipping their calves. He immediately ordered them to be isolated and the place thoroughly disinfected, and saw that attention was paid to the sanitary condition of the byre. By these measures the outbreak was checked. If the owner had taken the proper measures at first, he would have lost no more than the first calf. He generally found that where they had cases of abortion from accident or traceable cause, they rarely had a case of *enzootic* abortion, and that where they had the *enzootic* form, it was impossible to fix upon the cause. The best treatment was isolation, to use disinfectants, give attention to drainage and ventilation, alterative medicines, and, if possible, to let the cows rest for some time after slipping the calf. When a cow slipped once, she was liable to do so again. He was consulted on one occasion about a remarkable case where they could never get a cow to "hold the bulling." It was a very good cow. He advised that she should be given three or four successive periods of rest. This was done, and she was all right afterwards.

Mr. SMART (Newcastle) said he saw many cases of abortion in animals brought from abroad. In some cargoes as many as five or six aborted their calves. The exciting cause often was the knocking about they got on the voyage, but in the majority of cases the predisposing cause was Tuberculosis. The majority were old animals which were, undoubtedly, affected with Tuberculosis, and tubercular matter was discharged from the uterus. The President had made a remark that struck him as a useful hint, and that was as to the isolation of the men in charge of those animals. The animals that aborted were removed from the Sanitorium, and put into the open market, and if abortion was, as some of the speakers believed, contagious, there was a very fruitful source of abortion in those animals which had recently aborted being brought into contact with pregnant animals.

Professor WILLIAMS said:—Since you asked me to prepare the few remarks I have already made, I have met several parties interested in Highland cattle. Abortion, they said, was seldom or never heard of amongst the cattle living in a state of nature. Artificial feeding and surroundings have as much to do with it as anything else. I may also mention that Tuberculosis is a rife source of abortion. The influence of the sire upon the offspring is also mentioned by various parties. If the sire is a healthy animal, generally speaking, they say the parturient period goes on all right. But I can well understand, and especially in Tuberculosis with a tainted sire, the progeny would also be tainted. I have no doubt, as Mr. Smart has stated, we have Tuberculosis not only in this country, but that we get it from abroad. The hints that he has thrown out should cause some agitation as to the importation to our shores of Tuberculosis. We have plenty of it amongst our own cattle, without getting more of it from abroad; and if the thing could be stopped, it would be a very great blessing. The remarks I have made are imperfect, and were hastily put together. If they will throw any light on the matter at all, and cause men to reflect and then to endeavour to find out the cause of this very mischievous disease—as it may be called—I shall be very

well rewarded. A proper investigation ought to be made into the subject by experts. It is all very well to discuss the matter, but to get at the very root of it a man ought to be engaged by the Government, or some agricultural association, to go fully into it and inquire into the circumstances of every outbreak in every county. Such a man, with the aid of the microscope and chemical agents, and with the help of a selected assistant to carry out these investigations, would be able to throw a light upon the matter that would be worth millions of money. We are discussing it more or less in the dark. The official he had suggested could investigate into the causes of *enzootic* abortion, whether arising from the food, from sympathy, or whether the result of some mysterious disease, such as Tuberculosis. We also know that the fœtus is subject to the same diseases as animals of a mature age. Some suffer from one disease, and some from another, neither having any connection with the condition of the cow ; but in all cases *post-mortem* examinations should be made. I think the question is a very important one, and I think that you, Mr. President, and the Society, are very much to be thanked for having brought the matter prominently before the public and the profession.

Mr. BORTHWICK (Kirkliston, N.B.) said he thought the principal causes of abortion in cows were improper feeding and lack of exercise.

Mr. C. STEPHENSON said he had to thank Professor Williams for the very valuable information he had given them. He thought that if another argument was needed to prove that the question required investigation, it was that meeting. It was evident that very little was known about it. He was sorry they had not some breeders and herdsmen there that day, as he believed that much valuable practical information would have been obtained from them. He did hope that the profession would now devote some attention to it, for it was far from creditable to us that an important subject like this should have been left so long, comparatively speaking, neglected. He moved a vote of thanks to Professor Williams for his address.

Mr. MCGREGOR seconded the vote of thanks, which was carried by acclamation.

Professor WILLIAMS returned thanks for the vote.

On the motion of Mr. DUDGEON, seconded by Mr. MULVEY, a vote of thanks was passed to the visitors for their attendance.

THE ANNUAL DINNER.

Mr. Elphick occupied the chair, and after dinner proposed the loyal toasts, and "The Army, Navy, and Volunteers," and the latter toast was responded to by Dr. LUKE ARMSTRONG, Dr. WICKS, and Mr. G. FARROW.

Mr. W. J. MULVEY proposed the "Royal College of Veterinary Surgeons." He condemned the clause in the charter of the college which prescribed that after next year the council and examiners should be elected from among only the Fellows of the college, and urged the necesssity of having the clause altered so that others might be elected members of the council.

Professor WILLIAMS responded, and expressed himself in favour of the council of the college being made more representative. He felt sure they were upon the point of a new charter dealing with the question of representation and fellowship.

Mr. CLEMENT STEPHENSON proposed the toast of "The Sister Profession." He showed how the two professions were connected with each other, and said he hoped that in a short time a new Medical College would be erected in Newcastle ; and that college would not be complete unless the veterinary profession was represented in it. No college of medicine would be complete that had not a chair specially devoted to the study and investigation of

diseases that were common to the lower animals and man, and that were communicable one to another. He referred to the danger arising from milk and meat from animals suffering from tubercular disease. He spoke of the diseased animals and sheep which were sold in Newcastle market to be consumed by the people, and said these were matters which ought to be attended to at once. It was years since he brought before certain members of the medical profession in Newcastle the necessity of having a chair in the Medical College for the study of these matters, and he went so far as to say he would gather and guarantee funds for a chair to be devoted to the study of diseases common to man and animals ; when the proper time came, he would do all he could to raise the necessary funds.

Dr. LUKE ARMSTRONG responded, and expressed the hope that Mr. Stephenson's desire of founding a new chair at the College of Medicine would be carried out.

Professor WILLIAMS proposed the toast of "The North of England Veterinary Medical Association." He promised to give his heartiest support to the establishment of a school of veterinary medicine in Newcastle.

The PRESIDENT responded, and, in the course of his speech, referred to many of the topics mentioned in his inaugural address.

Other toasts were afterwards proposed and responded to, and a very enjoyable evening was spent.

COLIN GRESTY, *Hon. Sec.*

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE fifteenth half-yearly meeting of the above society was held on May the 1st at the Norfolk Hotel, Norwich, the President, G. A. Banham, Esq., F.R.C.V.S., Cambridge, in the chair. There were present :—Professor Walley, Edinburgh ; Messrs. Santy and Slipper, Norwich ; T. Auger, Wymondham ; J. Hammond, Bale ; J. K. Gooch, Holt ; J. D. Overed, Blofield ; R. S. Barcham, Paston, hon. sec. After the preliminary business, the President read a highly interesting inaugural address, dealing with the main veterinary politics of the day—the question of the Fellowship Degree, with reference to the Council of the Royal College of Veterinary Surgeons eliciting an animated discussion. Professor Walley, Principal of Dick's R.V.C., Edinburgh, then read a valuable and very instructive paper on "Neurose of uncertain origin, Megrims and Epilepsy, Chorea and Immobilité," treating of each in concise and pleasing terms. The subjects being thoroughly discussed, a cordial vote of thanks was conveyed to the essayist by Mr. Santy, in which he referred to the great pleasure it was to all to have listened to such an able paper, and the honour felt in having such a distinguished member of the profession amongst them. A similar compliment having been paid to the worthy President, the meeting terminated.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

(*Continued from p.* 355.)

4th. *Economy in Consumption of Food.*—This forms one of the most important factors in my argument, and to the calculating man must be a subject of intense interest, for here the money-making faculty may find ample scope for development. The immense loss occasioned by the ordinary system of grazing, one would have thought, was apparent to the most obtuse mind, and that any means of avoiding same would have been embraced gladly ; but no, ever and anon we either hear or read of prospects for

enlarging the area of permanent pasture as the sovereign remedy for all the recent losses incurred by agriculturists. It is in some respects more than surprising to me that men like Mr. James Howard, of Bedford, should not be able to work out a method of obviating such loss, even supposing that the soiling system had never been heard of; but I believe I am correct in saying that he, and many others holding equally prominent positions in the agricultural world, go on advocating for more and more permanent pasture. Such advice will never help the farmer to meet his difficulties, for many reasons, some of which will be apparent to you in the succeeding remarks. Now what are the facts regarding grazing? You have, say, in the month of May, a nice piece of closely grown grass—rented at from three to five pounds sterling per acre, and if near a town, probably seven or eight pounds—so far advanced in growth that in another three weeks it will be fit for the scythe; into this you turn a number of cows or fatting oxen; the first thing they do is to walk all over it and trample it down; had this same thing been done a week before by some unfortunate boys, you would in all probability have visited upon their sacred heads or bodies some condign punishment; in a very few days the field will be covered over with patches of dung, the animals will of course have staled proportionately often, and the result is that in some places the grass is eaten quite bare, in others it is rank and coarse, so much so, indeed, that neither these bovines nor any other class of animals will consume it; in addition to this, the grass is further rendered unpalatable in consequence of the animals breathing and lying upon it, and it becomes a very open question whether or not a far larger proportion of this costly herbage is not spoiled and rendered useless than is available for feeding. If these reasons are not in themselves sufficient to place an everlasting ban upon grazing, it is difficult to conceive what would be, and only the absence of a better and more economical method could justify the continuance of such a bad system; but to return to our argument. Having utilised as much meadow grass in the green condition as can be spared, the remainder is cut for hay; the aftermath should then be fed off by sheep that are receiving either corn or oil-cake. In this manner the close cropping of the second growth is ensured, the whole of the pasture will be equally and thoroughly manured, at the best time of the year for this purpose, improvement of the land is assured, and the best return made available for a description of land that is generally the most expensive property to rent. In order to meet one's requirements for the dairy stock in the spring, an early sown crop of vetches is relied upon, to be followed by a second sowing about three weeks thereafter; from each of these two cuttings may be obtained—provided of course that the liquid manure cart is made use of, and the land is in fair heart; these provisions apply to all the crops hereafter referred to. These vetches would then be followed by lucerne, sainfoin, and clover; the former of which will produce at least three cuttings during the season, and clover certainly two crops. In this way a considerable weight of grass is obtained; in the case of lucerne, as much as eight tons per acre; sainfoin five tons: and clover, three to four; and the whole of the produce will be consumed, none wasted, as is the case where animals have to collect their own food. Allowing that cows will drop some out of their ceils and trample it under foot, the consumption of the whole may be rendered certain by numbering among the stock some useful store pigs. Compare the before-mentioned weight of croppings with what is produced on the best meadow land in England; then, after allowing for the waste already spoken of, the larger rental paid for grazing land as compared with that paid for ordinary quality arable land, such as would grow heavy crops of these artificial grasses, add these items together and strike a balance, after allowing for the increased cost of labour, and the result of the calculation will fairly astound the prac-

tical man! There will be no hesitation in frankly admitting that therein is economy in very deed!—economy that will make a probable difference of 150 per cent. in the returns, and that on the credit side of the account; economy that produces not only heavier and more valuable crops, but that necessitates a method of cultivation that will improve the quality of the land in a very marked manner; economy that advances the interests of tenant, landlord, and the general public; economy that will result in a vastly increased production, and which would conduce in a substantial manner to the development of national wealth.

5th. *Great Saving of Land.*—In order to draw a sufficiently striking comparison between the advantage under this head, it becomes necessary to remind you that according to ordinary calculations it takes about two and a half acres of grass land, or an equivalent thereto, to keep a shorthorn cow or ox the year round, that is, taking land of average quality. It is upon some such basis as this that a farmer would calculate how many head of cattle he would require to stock his farm if about to rent a new occupation. I shall now proceed to show you by figures worked out in detail, that instead of requiring two and a half acres per head, somewhere about half an acre only, or less, is requisite to maintain each head of cattle on the "soiling" system; this, no doubt, will appear at first sight a rather staggering statement, for what does it mean when reduced to practice? Nothing less than this, that where one bullock is kept according to the prevalent custom of management, four or five according to the circumstances may be maintained. Every one who knows anything at all about the management of neat stock, will admit that for every twenty-four hours, one hundred pounds' weight of green food, such as clover, sainfoin, or lucerne, would constitute a very fair average allowance; this being granted, I will proceed to explain how to produce such a daily quantum the year through. For the sake of illustration, we will assume that half an acre or eighty rods of land is apportioned as follows:

Mangel-wurtzel	15	rods
Swede Turnips or Carrots	15	„
Potatoes	20	„
Cabbage	15	„
Lucerne or Sainfoin	15	„
Total . .	80	„

Prior to sowing the mangel-wurtzel, an early crop of vetches drilled the latter end of August, or as soon after, say, an oat or barley crop had been harvested and the land could subsequently thereto be manured and ploughed, would be cut once, yielding at a moderate estimate a crop of 100 pounds per rod . . . . . = 1,500 lbs.

A similar crop of vetches, sown perhaps a month later than the former, preceding turnips or potatoes. . . . = 3,500 lbs.

The fifteen rods set in cabbage, allowing 144 plants to a rod, weighing on an average 3 lbs. each. . . . . = 6,840 lbs.

The fifteen rods of lucerne, putting the produce down at the low estimate of 200 lbs. per rod . . . . . = 3,000 lbs.

The leaves of the mangel-wurtzel picked from time to time, during the month of October, estimated at 300 lbs. per rod . . . . . = 4,500 lbs.

Total . . . 19,340 lbs.

This represents the weight of the green food only which would be utilised during the 185 days of late spring, summer, and early autumn. Allowing 100 pounds' weight per diem for each animal, it will be seen that there remains a surplus of 840 lbs. on this portion of the produce. The remainder of the crops grown upon the said eighty rods of land consists of the mangel-wurtzel roots, carrots, or turnips, and potatoes. The weight of produce of the mangel-wurtzel roots is estimated at thirty-five tons per acre, which according to the experience of those who buy seed of Sutton's of Reading, and Carter's of London, is considered moderate; at this calculation the produce of fifteen rods of mangel would amount to . . = 7,840 lbs.
The Swede turnips or carrots, estimated at twenty-five tons per acre . . . . . = 5,600 lbs.
Twenty rods of potatoes are estimated to produce 120 lbs. to the rod, or eight and a half tons per acre, and . . = 2,400 lbs.

Total . . . 15,840 lbs.

Allowing seventy-five lbs. of roots per diem for each cow during 180 days of late autumn, winter, and early spring, 13,500 lbs. would be required, which leaves a surplus of 2,340 lbs.; this surplus produce would in all probability be potatoes, which being a saleable crop, might be sold to purchase hay and corn or hay and straw, required as the complement of the winter's keep. The surplus of potatoes amounting to one ton three quarters and sixteen pounds, would be badly sold if they did not realise seven pounds sterling in an average year. The present must not be taken as a fair specimen of what potatoes generally yield per acre, for I have no doubt the average far exceeds this quantity; but as it is proposed to show that a daily allowance of seven lbs. of hay and seven lbs. of oat-straw, cut into chaff, are sufficient with the seventy-five lbs. of roots to supply an amount of nutriment equal to 100 lbs. of grass, it will be seen that the value of this estimated surplus is more than enough to find the required quantity of dry provender. In order that a fair comparison may be drawn between the respective values of the nutritious elements contained in the 100 lbs. daily allowance of artificial grasses, and the eighty-nine lbs. combined weight of roots, and hay, and straw, or other dry food, resort must be had to chemical analysis. Take, for exampie, lucerne as the standard among the grasses; its composition is as follows, viz.:—

Water	73·41
Flesh-forming substance	4·40
Heat and fat-producing matter	19·11
Ash	3·08
	100·00

The composition of roots, hay, and straw will now be placed side by side, that the constituent elements may the better be observed and compared. They are as follows, viz.:—

	Oat Straw.	Meadow Hay.	Swedish Turnips.	Mangel.
Water	12·06	14·61	89·460	87·78
Flesh-forming constituents . .	1·63	8·44	1·443	1·54
Heat and fat-producing substances .	37·86	43·63	5·932	6·10
Woody fibre (indigestible). . .	43·60	27·16	2·542	2·50
Inorganic matter (ash) . . .	4·85	6·16	·623	·96
	100·00	100·00	100 000	100·00

It will be observed that the quantity of water in the roots is very large, something like nine-tenths of the whole; it is also worthy of special attention that the indigestible constituents and the inorganic matter are very much smaller proportionately than in the hay and straw, which contain a comparatively considerable excess of flesh-forming and heat and fat-producing substances. Again, compare the quantity of flesh-forming and heat and fat-producing substances contained collectively in the roots, hay and straw, with the same elements in the lucerne, and it will be evident that the 89 pounds' weight of the former food materials really contain more albumenoid and fat-producing elements than the 100 pounds' weight of artificial grass; but this is as it ought to be when we take into account that the animals require in the winter, during the period of low temperatures, food containing a larger proportion of heat-producing materials. Please to note that I have not made any comparison between the chemical constituents of carrots and cabbages, both of which are richer by far than those mentioned in my calculations, but which, if gone into, would furnish evidence favourable to my argument.

I have thus shown that the produce of half an acre of land, medium quality, is sufficient for raising enough to keep a cow for one year; which proof is confirmatory of the text of this fifth paragraph, wherein it is affirmed that on the soiling system great saving in land is effected.

6th. *Waste in land now occupied by fences dispensed with.*—This must be apparent, for where animals are kept constantly in yards and artificial enclosures, the great proportion of natural fences serve little or no purpose; certainly a considerable number might with advantage be rooted up; the result would be to reduce the annual expenditure involved for keeping same in repair; to increase the acreage of cultivated ground, and that without addition to existing rent; to do away with one very fruitful harbour of refuge for rabbits and other destructive vermin; to foster the full maturation of considerable areas of crops that now remain stunted and only partially ripened, in consequence of their close proximity to trees and thick thorn hedges, through which the sun's rays cannot penetrate.

7th. *Increase in the quantity and improvement in the quality of manure.*—The proposition that the quantity of the manure is increased must be self-evident, from the fact that the soiling system enables the stock owner to keep a larger head of cattle; but this is not all; when the cows are turned into pastures to graze, the dung is frequently deposited under trees, from the simple reason that the animals congregate wherever there is a shady spot; or if not here, they are huddled together in a pond, where they seek to cool themselves by standing in water up to their flanks, into which the fæces are dropped and the urine passed, and both are completely lost for manurial purposes, simply serving to render impure the liquid intended for drinking. Moreover, that portion of the solid excrement which is deposited on the land is very unevenly distributed, as may be observed by the tufts of coarse grass that spring up where the droppings have been allowed to remain for any length of time. Where cattle are kept in a yard, provided with a suitable paving, not the smallest quantity of excrement, either solid or liquid, need be lost; the whole is retained among the litter, and there subjected to the process of putrefaction necessary if it is to be used as a fertilizing agent. The chemical constituents of fresh and rotten farm-yard manure are pretty much the same; the principal difference being that in the rotten manure, or such as has undergone fermentation, there is a larger proportion of soluble material. Now, it is well understood that fertilizing substances to answer the objects of their application must become soluble in water; and to render them soluble, a change has to be effected by fermentation, because prior to this

process the proportion of insoluble material exceeds considerably the soluble matter; by way of illustration, take the general composition of fresh long dung in the natural state; it is as follows, viz.:—

Water	66.17
Soluble organic matter	2·48
Soluble inorganic matter	1·54
Insoluble organic matter	25·76
Insoluble inorganic matter	4·05
	100 00

Here, be it observed, the available soluble organic matter is only about two and a half parts in a hundred, whereas the insoluble organic matter, which in its present condition is perfectly useless for reception into the organization of plants, or to promote their growth, represents rather more than twenty-five and three quarter parts in one hundred; this proves beyond question the prime necessity of subjecting animal excrement to the process of fermentation, and if that is to be effected so as to retain the valuable products of decomposition, it must be conducted under circumstances favourable to the process; one important condition being that the incipient decay shall take place in such a manner as to prevent as much as possible the escape of ammoniacal gases liberated during fermentation. Nothing will conduce so much to the successful realisation of this object as the thorough distribution of both solid and liquid excrement among a porous vegetable mass, such as straw, which effectually prevents the evaporation of volatile gases, if left undisturbed. When, however, the droppings are exposed to the influence of air and moisture, as is the case when they lie unprotected as deposited in the fields, putrefaction proceeds, but the ammonia, being a peculiarly volatile gas, rapidly passes off, and the most valuable constituent of the manure is lost. This remark applies very forcibly to the liquid excrement, as urine contains a larger proportion of these fertilizing constituents than do the fæces. The ordinary system of preparing manure in open yards, subsequently carting it out to the road-side, where it is turned and re-turned, can only be considered as wasteful and objectionable in the extreme, while the evidence advanced in favour of suitable protection seems overpowering and unanswerable.

8th. *Value of produce increased.*—One of the principal sources of economy in the "soiling system" is the considerable increase in the weight of cropping obtained; for instance, a clover crop may be mown three times, even during a dry summer, provided the land is kept clean, was previously well manured, and liberal use is made of the liquid manure cart.

Sainfoin is a plant of great hardiness, especially adapted for cultivation on these light soils resting on porous limestone rocks; it contains an abundant proportion of flesh-forming matter, and is very rich in heat and fat producing substances; it is little affected by dry seasons, and only attains to greater luxuriance should wet weather prevail; the land needs to be well cleaned and deeply ploughed before sowing, and each season it should have a top dressing of well-rotted farm manure, gypsum, or soot; but as the duration of this plant is generally estimated at six or seven years, it cannot be other than an inexpensive crop: the produce of three cuttings during the season is probably not less than five tons per acre.

In all my calculations of the weight of produce per acre, I take the same at what the produce would be if made into hay, in which case the proportion

of flesh-forming matters and heat and fat-producing substances, as compared with water, is much larger, for in grasses the water amounts to between 70 and 80 parts in a hundred, whereas in hay it does not exceed fifteen or sixteen parts per cent.

Lucerne, again, is one of the most productive and profitable crops that can be grown; it is ready for the scythe about the end of April, and if properly treated will be fit to cut a second time in the course of six weeks; and with the regular application of liquid manure after each cutting, is capable of undergoing the same operation at similar intervals during the summer.

Certainly four crops may be looked for, the produce at each cutting averaging two tons per acre. Lucerne is the richest in flesh-forming matters and heat and fat producing substances of all the artificial grasses; it contains less water than any, but exceeds all in inorganic matters, yellow clover coming next in order in this respect. This plant will last as many years as sainfoin, but requires a more loamy and richer soil for full development, or an equivalent in manure; the land should neither be wet nor too heavy.

By way of keeping the land clean, lucerne should be drilled with the rows sufficiently far apart to allow of the use of a small horse hoe, which should be used in the autumn, prior to the application of the annual top dressing, and in the early spring subjected to a good harrowing and rolling. Of the clovers recommended for the soiling system, none succeeds better than the prolific and nutritious trifolium, and next thereto in value is ordinary cow-grass.

In addition to the usual root crops, great attention should be devoted to the cultivation of carrots and parsnips; both are expensive productions, but they more than amply repay their cost, and are alike eminently suited for dairy cows and fattening oxen; to obtain large crops there must be a considerable depth of rich mould; soils of an intermediate character between clay and gravel are best suited for these plants, namely, such as are friable, loamy, or sandy. In cabbage the stock owner has one of the most fruitful of crops, especially where the soil is too heavy for growing turnips or carrots to advantage; there are several varieties, capable of withstanding the severity of our winters, that may be raised with the greatest success on almost any clay soil; by maintaining a regular series of sowings during the months of February, May, and July or August, a succession of crops may be sustained, and the round of cabbage husbandry preserved. Where the land is strong, and the variety of cabbage large, the plants may be set out at a distance of three feet each way, thus allowing ample room for the use of the horse hoe both in the longitudinal and cross directions.

Cabbages are richer in oil and nitrogenous matter than any other green food, and are most valuable for milch cows, as they increase both quantity and quality of milk without affecting the flavour unpleasantly. The composition of cabbage is as follows, viz.: water, 86·28; nitrogenized substances, 4·75; non-nitrogenized matters, such as woody fibre, fatty and respiratory substances, 7·10; inorganic matters (ash), 1·87. The crop is a very prolific one, and though somewhat exhausting to the soil—a defect which is easily rectified—is particularly remunerative, and well deserves the position here assigned to it in proof of the vastly enhanced value of land produce where the soiling system is conducted.

The 9th and last clause demanding consideration is, *Protection afforded to Stock against "Disease and Parasitic Invasion."*—Exposure is one of the most fruitful causes of disease among neat stock. Alternately subjected to the influence of the scorching rays of the summer sun and the relentless downpour of heavy thunder showers, the keen blast of the east and north-east winds, permeated by frost, following immediately upon a mild and damp

atmosphere, normal perspiration checked and natural functions materially disturbed thereby, it is a marvel that a much larger number are not cut down with acute inflammation of various organs, which as a natural sequence would prove fatal long before professional aid was dreamt of; but the neglect of all comfort, if not resulting in absolute and immediate loss, is deservedly followed by suspension in improvement and the entire want, for a lengthened period, of thriving condition. Inflammation of the liver, particularly in high-bred animals, is prevalent in hot weather, when subjected to exposure and frequent changes of temperature. Dysentery often follows exposure to wet and cold, and marks out as its victims high-bred animals in whose strain there is a taint of Scrofula.

Diarrhœa may quite as frequently be traced to exposure as to improper dieting, and cold is a very fruitful cause of it, inasmuch as an extra amount of pressure is thrown upon the lungs, kidneys, and bowels by the arrestment of the excretory function of the skin. To these may be added Rheumatism, Red Water, Milk Fever, and Congestion of the Lungs, as diseases frequently traceable to exposure during sudden alterations of the weather. Prevention is always better than cure, and the best way to obviate the dire results that are so often due to exposure, is to provide suitable shelter—shelter alike from the overpowering heat of the sun, the soaking rains, the keen winds, and the cold, biting, frosty night air, with the addition of a comfortable, dry bed to rest upon in the place of the sodden earth. On the other hand, stall-feeding, which is the opposite extreme so far as the animals' luxurious comfort and warmth are concerned, has its objections, inasmuch as total absence of exercise, where animals are constantly tied up in stalls or shippens, as in this and other cities, predisposes to febrile diseases, and imperfectly ventilated sheds to diseases of low type by lessening constitutional vigour.

There are various insidious maladies, which owners of stock are in the greater proportion of instances unable to render any satisfactory account of, due to the presence of what the unscientific designate "*worms*," which infest the bodies of the higher animals, that are not at all appreciated as they should be, when one calls to mind the terrible havoc they make; to some of these it is now proposed to direct attention, for it is impossible to estimate too highly the value of a general acquaintance with the subject of helminthology. A very large number of the internal parasites pass through at least two stages in the course of their development, namely, the larval and the adult forms; sometimes the larval or immature condition is passed in one of the higher forms of animals; for instance, gid hydatids, or cænuri, are larval parasites found in the brain of the sheep or ox, and, I believe, sometimes in the muscles of rabbits; if a dog should partake of either of these, by no means an uncommon occurrence, the larval parasite he swallows develops in the dog's body, into, it may be, a colony of tape-worms, scientifically known as tænia cænurus, a single hydatid frequently displaying quite a number of heads, each of which is capable of developing into a tape-worm. The dog now acts as the host to the sexually mature tape-worm, and at every act of defæcation distributes the ova of the adult parasite, which may either be deposited in a pond of water, or be conveyed thither on the feet of animals going thereto to drink, and either then or at some future time may be swallowed by an ox or cow sent thither to slake his or her thirst, and the seed is sown for a further crop of hydatids. Of course, if such ox or cow had been supplied with pure water in troughs placed in a yard, and they had not been allowed to drink of the pond water, the eggs of the tape-worm could not have been swallowed, and all future dire results therefrom would be avoided. Again, there are larval forms of entozoa that take up their abode in the bodies of very minute molluscs, and others, it is supposed, in the common earth-worm. Dr. Cobbold and Professor Leuckart have each made

numerous and distinct experiments that now place these, which were formerly mere theories, well within the region of facts. And here we have a very forcible argument against grazing, for these minute molluscs and earth-worms find their way about the pastures, and are then and there taken up by the stock, or, as in the case of earth-worms, leave the larvæ to be taken up into another host. Certainly it is not unreasonable to suppose that these minute molluscs may thus be swallowed with the food, inasmuch as their habitat is upon the blades of grass, though it may reasonably be objected that there is not much fear of an ox swallowing an earth-worm.

In his larger memoir, Dr. Cobbold gives a very clear account of the various life phases of the liver-fluke, which happens to be one of those parasites that during the course of development gains access to the body of an intermediary bearer; and we learn from this source that "the progeny of this redia consists of armed cercariæ, which after a time quit the nurse to pass an independent existence in the water."

Under such circumstances cattle may, and do, become infested with the larval forms of the various descriptions of flukes when drinking from ponds and stagnant pools; for Dr. Cobbold states in his smaller work as follows, viz. :—"It is probably not necessary that the pond snails themselves should be swallowed, seeing that the free swimming cercariæ appear to be able to complete their fluke development without passing through the encysted pupal stage within the bodies of their intermediary bearers"—this negative evidence in support of my former statement that ruminants are exposed to the risk of being infested by swallowing minute snails with their fodder; but there is positive evidence of this statement in Dr. Cobbold's larger work, wherein he asserts: "In the cases of some species of fluke there is reason to believe that before the cercariæ gain access to their final or definitive host, they re-enter the bodies of the molluscs; in this new situation they develop into the so-called pupa, which is at length passively transferred with the fodder or drink to the digestive organs of the host."

It will thus be seen that cattle are exposed to two sources from whence they may become infested with these immature helminths, the free swimming cercariæ in the ponds and stagnant pools, and the molluscs which may be found either on the reeds growing in ponds or upon the blades of grass in the pasture; but in either case, when once an entry is gained into the body of the ruminant, a new phase in the existence of the larvæ is rapidly acquired, and a sexually mature entozoon is the result; it is true that the fasciola hepatica is not often found in cattle, but, on the authority of Dr. Cobbold, I learn that the distoma lanceolatum infests the liver ducts of cattle, and that "still more common and widespread amongst ruminants is the amphistoma conicum occupying the paunch." This last-named parasite requires a practical eye to discern it, even when present in considerable numbers, inasmuch as it is hidden among the leaf-like papulæ of the mucous membrane lining the rumen. Many practical breeders and stock owners not unfrequently indulge in scornful expressions of incredulity when informed of the presence of parasites among their stock, and appear to question the evil results of parasitic invasion; but such reception of scientific truth is only a lamentable evidence of ignorance, and whatever loss accrues therefrom is well deserved.

Grasses such as clover, lucerne, and sainfoin, do not appear to furnish a congenial resting-place for the minute vagrant molluscs before referred to; hence, while there would still be some risk of placing these little creatures before stock, when meadow grass is cut and fed on the soiling system, the risk is reduced to a minimum, because the chief reliance is to be placed upon artificial grasses, and the greater proportion of the meadow grass would be made into hay.

There is one other description of parasite that is specially destructive and injurious to its bearers, found among oxen ; I refer to the strongylus micrurus, which is productive of that form of parasitic bronchitis known as husk.

Dr. Cobbold gives it as his opinion, based upon experiments he conducted in 1875, "that the larvæ of this parasite are passively transferred to the digestive organs of earth-worms." Be this as it may, there seems good reason to believe that the larval forms of these minute round parasites are taken up by animals when drinking from stagnant water, which serves as another strong point in favour of the adoption of a more considerable management where bovine stock is concerned.

Having thus explained the results and advantages realisable under the "soiling system," I will bring this tedious argument to a conclusion ; a great deal more might be added respecting the precise details of carrying out the principles of the system; this, however, does not come within the limits of this paper.

I have endeavoured to show that under this system far larger profits may be realised than is ordinarily the case ; that the dairy may be made a source of remunerative investment for capital ; also, that the system is sound from a health standpoint, both as regards cattle and consumer. I am myself convinced of the truth of the arguments I have advanced, and I can only hope that you may be also, and that you will, as opportunities arise, seek to diffuse these ideas among your respective constituencies.

By your forbearance, I should like to explain that as this system affords means of keeping a far larger number of cows in proportion to the acreage under cultivation than the ordinary system of farming allows, and that whereas the imports into this country of butter and cheese amounts to a very considerable sum per annum—something like twenty-five millions of pounds sterling, I believe—there is a splendid opportunity for developing a remunerative trade in this direction. I have shown that a market exists, and how it may be supplied. Farther, the new system of ensilage, which is gradually becoming more and more popular, is specially applicable where artificial grasses are cultivated, and would add materially to the profitable carrying out of the system I have had the pleasure of submitting for your consideration to-night. I am quite aware that before such a system as I have indicated could be generally adopted over the length and breadth of the country, dairymen and farmers must of necessity have better security for the investment of capital than they now possess ; as a rule the relations between landlord and tenant require the most thorough overhauling and revision ; still, there are in the country a great number of agriculturists who are either cultivating their own property or hold the same on sufficiently satisfactory leaseholds to warrant a practical test, and so furnish evidence of a general character for the benefit of the greater community of tenants, by the time that the land laws have undergone the change for the better that is in my judgment imminent, and the necessary protection for the investment of capital will be assured.

A very interesting discussion followed, in which nearly all the members present took part.

EDWARD KITCHIN, *Hon. Secretary.*

THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

(*Continued from p.* 359.)

"I give here the essential passages of the article by Bernard:—

"RECORD OF THE MARES SERVED IN 1826 BY M. F.'S STALLION.

Villages and hamlets in which the disease reigned.		Proprietors of mares covered, and of animals suffering.	Mares covered.	Total. Suffering.	Total. Dead.	Observations.
Vieux Montier.	In the hollow.	C	1	10	9	1st Inv. The mare covered was the second in the stable; dead.
		L	2	3	1	2nd Inv. The disease commenced by the mares served, one of which died.
		P	1	2	1	,, The disease commenced by the mare served; dead.
		P	1	0	0	She had been affected in 1825.
	On the hill.	L	1	5	5	1st Inv. The disease commenced by the mare served, and it was also by her that the disease commenced in the country; she died.
		A	1	5	4	,, The disease commenced by the mare covered, which had previously been weak for some-time; she died.
		D	1	3	3	,, The disease commenced by the mare covered; she died.
		L	4	4	—	,, Affected after covering. They survived, and were again covered by the same stallion. There was no return of the disease.
Saint-Martin-Choquet.	In the hollow.	M	1	4	4	,, The disease commenced by the mare covered; dead.
		L	2	—	—	,, Were not affected. They had suffered in 1825.
	On the hill.	L	1	1	1	,, Affected after service; she died.
		C	6	8	2	,, Six having survived, were covered by this stallion after their recovery; no return of the disease.
Lottinghem.	All the stables are in the hollow.	L	2	—	—	,, She had been affected in 1825.
		L	7	—	—	,, Idem.
		M	5	—	—	,, Idem.
		P	1	—	—	,, She had not been ill in 1825.
		S M	3	—	—	,, Idem.
		9	2	—	—	,, Idem.
		M	1	1	—	,, She was only slightly ill after covering.
Guesques et Verval.	In the hollow.	D	2	2	—	2nd Inv. Affected after service; recovered.
		9	1	4	4	1st Inv. The disease commenced in the mare covered by this stallion. Another mare was covered several days before by another stallion, but only fell ill some days after her.
		M	7	—	—	,, They were affected in 1825.
		B	2	3	1	,, The disease commenced by the mares covered; one of them died.
		R	2	0	0	,, They had not been affected in 1825.
	On the hill.	I	2	2	—	,, Ill after service, but only slightly affected.
		F	2	3	2	,, One of the mares covered only became affected; she died.
		C	1	1	—	,, Affected after service, recovered; she had been affected in 1825.
		I	5	—	—	,, They had been affected in 1825.
		G	1	1	—	,, She was slightly affected after service.

Résumé of Table.

"Sixty-eight mares were served in 1826 by M. F.'s stallion, twenty-four of which became ill after service; one only among these had been ill in 1825; eleven died. Of thirty-eight other mares covered by this stallion which had not been affected, twenty-four had the disease in 1825; and the last six covered after their recovery, had no relapse.

"The total affected was sixty-two. Thirty-seven died, almost all of which inhabited the hill or just the foot of it, where the nourishment differed but little from that at the top.

"At the same time as M. F.'s stallion did his service, the Messrs. D. H. and S., at Saint-Martin-Choquet, submitted their mares to the service of the stallion of M. F. The Messrs. P. and S., at Vieux Montier, and G. S. and B., at Tottinghem, put theirs to the stallion of M. L., and none of these were affected.

"These three stallions enjoyed good health, M. F.'s being even particularly remarkable for his qualities and vigour. I had occasion to see him several times during the reign of that terrible disease, and found him always the same. In several districts within a short distance of those which I have indicated, an analogous disease, but less fatal, manifested itself at the same time; but it had not been remarked that the service of any stallion particularly contributed to its development.

"In 1825, in several districts close to Licques, a burgh of that neighbourhood, the disease showed itself frequently a few days after the service of a stallion of M. C.'s.

"That stallion travelled the same districts in 1826, when his service had no unhappy results. In conclusion, in 1827, my colleague and friend, M. Meillon, veterinary surgeon, in the neighbourhood of Valenciennes, observed a disease pretty much the same in his district. This is what he wrote me on the subject:—

"'In a letter the 9th of July last (M. Meillon's letter is dated May 3rd, 1827) you inform me that a very disastrous disease reigned in the neighbourhood of Boulogne-sur-Mer, and appeared generally to have originated in the horses, in which it existed as the result of the service of a stallion of the districts to one or several of the mares inhabiting them. An affection almost the same, but less fatal, manifested itself this year in several of the districts surrounding Valenciennes, and was accompanied by a circumstance absolutely the same as that which you cite.

"'Three stallions of the depôt of Abbeville were placed with me during the service season. The services performed by "Ancus," one of them, were, in each farm in which the mares were covered, the origin, or rather the source, of the disease of which I have been speaking, and the mares covered by him have been always the first affected.

"'The disease afterwards affected successfully nearly the whole of the other animals on these farms; the foals and the asses even in some have not been exempt; whilst nothing of the kind has taken place as the result of the service of the other two stallions.

"'Of 200 animals of the horse species, divided over fourteen farms, ninety-four have been affected. The loss has been trifling. In each of the farms the disease manifested itself from two to five days after the service of "Ancus."'

"I thought that it would be interesting to bring together these documents with those furnished by M. Deglaire, who, of course, will always have the merit of having drawn attention to the until now unknown mode of contagion of Typhoid Fever. I say unknown, for the article of Bernard had been for many years completely forgotten.

"As to the manner in which the disease propagates itself following the

service, I know no more than M. Trasbot. Is it caused by the stallion, his leader, or the portable materials, hobbles, side-line, etc.? I do not know.

"The conclusions are put to the meeting and adopted."

Now gentlemen, I find from the notice calling the meeting, that I should terminate here, the above being the translation of the report and discussion. However, I would crave the indulgence of you, Mr. Chairman, and fellow members, for a short time to some remarks which I would like to offer as the result of my own observation. The first point, it appears to me, that requires to be decided is, What is Typhoid Fever? Well, gentlemen, for the French generally, Typhoid Fever is what is described by Professor Robertson as Influenza, with its varying features, or what Professor Williams describes under the several heads of Influenza, Epizoötic Cellulitis, Epizoötic Pleuro-pneumonia, etc. That the features of the disease, in its different forms, or different diseases, as each may view the subject, are clearly, carefully, and concisely exposed by each of the above writers all will admit; and to differ with them, if even only in degree, may seem to you, as it does indeed to myself, presumptive. The object, however, in reunions like the present, I take it, is the free expression of our ideas; so that they may be discussed, and where wrong, by the interchange of opinions, rectified. Weak, therefore, as my ideas may be, I submit them to you in the hope that the handling you will give them will be to our mutual benefit.

For a long time now I have felt that our notions of some of the contagious diseases of the horse are ill-defined, and that there is room for a distinction between the diseases described under the name of Influenza.

Recent pathological investigation has traced the contagion of many of our communicable diseases to a definite something, capable not only of direct communicability, but of innumerable modes of indirect transmission from animal to animal.

The actual contagion—the micro-organisms, the active factors in the diseases in which scientists have been able to isolate and examine them—are each one special to each disease. No matter through what different media they may be passed, they have each ever been found capable of producing one disease only, or a modification of that disease. Now, the so-called modifications of Influenza stand widely apart. First, we have what has been—and I think ought to be—called Epizoötic Catarrhal Fever, manifested by early prostration, stiffness, and alterations in the condition of the upper air passages and of the parotid and submaxillary glands, etc., but with no effusion into the cellular tissue of the limbs, or if so, more as a sequel than as an actual symptom of the disorder.

Then we have the disease with which, I imagine, the translation deals—viz., Epizoötic Cellulitis, or, vulgarly, "Pink Eye." This, at any rate, was the disease which could be distinctly traced to the service of two stallions operating in the West of Scotland, one on either side of the Clyde; and I would have you note particularly, gentlemen, that every mare affected through these animals suffered from Epizoötic Cellulitis, and from no other disease or form of disease; that they contracted it in from seven to eight days after service; and that when communicated to other animals on the farm—which was not at all rare—it was invariably the same disease, or form of disease, that they contracted. This disease, so far as my observations went, was not fatal, although when communicated to pregnant mares from the mares first affected it frequently, but not invariably, produced abortion.

A fact worth noting here is that in some instances the inoculation, apparently coincident with service, did not prevent impregnation. The information that I obtained with regard to one of the stallions was that in February of 1883 he, along with other horses in his owner's posses-

sion, suffered from the disease, but to a much less extent than some of the others.

The swelling of the limbs was, along with the other symptoms, so trifling that he received little or no treatment. When put to service that season, after his apparently complete recovery, the effect of his service was as above described. Several veterinary surgeons, I am told, examined the horse, and certified that he was not only in perfect health, but incapable of producing the disease. When I was asked to look at him one day by his leader, I had already had pretty conclusive evidence that his services were disastrous; and I accordingly told the man in charge that although he presented all the appearance of perfect health, I was not prepared to say that he was not producing the disease. I advised him to be put on hyposulphite of soda, chlorate of potash, and cinchona, and to have carbolised and terebinthinated inhalations and disinfectants. This treatment was adopted, but seemed to have given only a limited amount of satisfaction; his leader declaring that he afterwards transmitted the disease, but not so frequently. Strange to say, however, in 1884, when the horse, whose district was changed, commenced his following season, a recurrence of the disease took place, and I was asked to consult with Professor McCall on the case. The leader of the horse, adhering to his statement that a modification had taken place from the treatment under which I had put him the previous year, Professor McCall was induced to put him on the same, or similar, treatment, but with what result I did not learn.

Now, gentlemen, I have no doubt the point which we would all wish to learn, is how this disease is propagated by a horse in apparent health. To my mind, one thing is absolutely necessary, and that is that the horse must be, or have at some previous time been, himself affected.

Unfortunately, in the present state of our knowledge, this conclusion leads us to that most undesirable result—a hypothesis. For the fact that hypothetical reasoning is becoming less necessary in pathology, we are largely indebted to Chauveau, Toussaint, Pasteur, etc.; but their primary investigations were necessarily based upon hypotheses: and although it is certainly presumptuous to raise hypothetical premises on matters on which our French luminaries refrain from pronouncing any opinion, I hope that you will understand that my remarks in this direction are made in all humility, and simply with the hope that, should there be anything practical in them, they may lead towards the elucidation of the subject by those more competent, and having greater facilities, than myself.

You will observe that I mention that the stallion who gave so much trouble in this district was only slightly affected, and that several of his stable-companions were more seriously affected than he.

Now, these horses, I am told, after their recovery did not transmit the disease; and I am also informed that similar observations have been made in America. Such being the case, may it not be that in the more severe cases, where there is considerable effusion, the major portion of the microbes is effused with the serum into the cellular tissue, and having exhausted the supply of materials necessary to their existence, are rapidly eliminated from the system, more particularly by the kidneys? On the other hand, may it not be that the horse slightly affected, in the first place receives a much smaller dose of the virus, having also, perhaps, a greater inherent power of resistance? Secondly, that the microbe, in virtue of its more limited quantity, multiplies less rapidly, thus producing less evident effects on the system? Thirdly, that its disappearance from the system is slower, being effected by a process of attenuation, resulting from the repeated acquisitions by the system of new materials supplied by digestion and respiration? This, in fact, being a similar process to the experimental one, by suitable

fluids, might explain how the animals slightly affected conserve for an indefinite time the power of propagating the disease.

Whether these considerations are worthy of attention, one thing remains clearly established—that to many of us a new light has been thrown on the modes of propagation of which contagious diseases are capable; and I have no doubt but that many present considered, like myself, that they had each been the first to observe the particular mode which it has been the purpose of this paper to signalise.

I would like now to draw your attention to the disease of this class which, in my experience, is much the most fatal. This disease merits, I think, the title of Typhoid Fever, and seems to me to have little in common with the other two diseases, except that it is more than probable that both are due to micro-organisms, each, however, being special.

The onset of this disease is characterised in the patient more particularly by a period of anxiety.

The pulse at first is usually fuller and stronger than in either of the preceding diseases, bearing a resemblance in character and number to that of Laminitis, which, indeed, in my experience, not unfrequently is early associated with the disease. The respiration for the first three, or even four, days may but little exceed the normal. The temperature is usually from 102° to 103° F. The hair is always very erect, and this indeed is usually the first symptom observed.

There is very marked hyperæsthesia of the skin, the mucous membranes are injected, the mouth usually dry, the dorsum of the tongue having a velvety feel. Frequently the animal shows colicky symptoms; the fæces and the urine, however, still appear to be normal. On the third or fourth day the tongue is pasty and clammy, with slight fœtor, the mucous membranes still more markedly injected (sometimes icteric), and the temperature, which remits, probably, 105° F. From the fifth to the eighth day there commences a discharge from the nose of a dark-brown fluid, like serum deeply stained with bile.

On the buccal membrane, in the interdental spaces and along the frænum of the tongue, there frequently appears a rash, with here and there a large petechial spot, sometimes also seen on the Schneiderian membrane. The dorsum of the tongue is now a very dark brown colour, and very rough, and the fœtor from the mouth intense. There is frequently a cutaneous eruption and also albumen in the urine.

About this time, or sometimes some days earlier, the breathing has become much accelerated, the urinary secretion suppressed, the fæces much darker in colour, and in some cases constipated, and covered with deeply-stained mucus; although in a considerable number of cases spontaneous, slight diarrhœa occurs, which is often followed by an abatement of the symptoms. The fæces, whether diarrhœa be present or not, are offensive, but more so when diarrhœic.

During this time the pulse has undergone marked alterations, being now 80 to 100, usually hard, small, irregular, and jerky. On auscultation, the heart's action is found very irregular in force, some of the beats being actually palpitations, while the others are almost inaudible, and not unfrequently there is either a gurgling sound or a metallic tinkle, or both. The lungs disclose dulness at the lower portions, usually more so on the right side. At their superior portions the normal sounds are increased. At this stage of the disease I have not been able to detect well-marked crepitations, but frequently considerable effusion. The temperature oscillates between 104° and 107° F., and may even in some cases that recover reach 108° F. I have had two such, and one, resulting in death, registered 109·1° F. Cough does not usually exist, and if so, only during convalescence; nor is there usually any discharge from he e ye. One feature particularly striking is that the respirations are often

more frequent than the pulse. The disease has a variable course, convalescence commencing in mild cases in about eight days, while in severe cases the fever may run on, with slight intermissions, for twenty days. The cases of this disease which I have seen terminate in death, I have always been inclined to associate with uræmic poisoning. There have been many and variously-marked aberrations of the action of the posterior extremities, such as tremors of the muscles of the haunches and thighs, straddling, frequent attempts at urination with no urine voided, sometimes sinking of the stifles, periods of somnolence, with others approaching delirium; profuse perspirations with an ammoniacal odour; stupid, dazed, appearance, with irregular movements, striking the head against the sides of the box, with occasional excitement and wild neighing, sometimes amaurosis and coma, with quiet death; at other times, death with violent paroxysms and apparent agony. During convalescence, which is often much more rapid than the lesions capable of detection would warrant us in prognosing, I have often been able to detect well-marked moist crepitations. Of the *post-mortems* of these cases—of which I had last year, unfortunately, the opportunity of seeing four—the principal appearances were an inflamed condition of the mucous membrane of the stomach and intestines, with, in two cases, distinct ulcerations of the stomach, and in the others large hæmorrhagic patches, principally in the stomach, with streaky, dark, inflammatory patches in the intestines; and here and there on the openings of the glands hard crusts of what I thought was dessicated lymph, stained nearly black, which, in some cases, when removed, left a slightly ulcerated appearance, in others the openings of the glands considerably enlarged. The areolar tissue round the kidneys was infiltrated, in some instances, with an amber-coloured serosity. The kidneys were soft and very friable, generally congested, and filled with minute vascular extravasations. The peritoneal cavity contained a considerable amount of effusion, of a dirty browish yellow colour, and the peritoneum was marked with petechiæ. The lungs, particularly the right, were much engorged at their lower portions, and the tissue more disintegrated than inflamed—all trace of the lobules being lost—and having a black, granular appearance, more like broken-down liver than lung tissue. The blood was tarry in appearance, with little tendency to coagulate, and there were epicardial and endocardial hæmorrhagic markings. The pericardium contained a quantity of thin claret-coloured, or blood-stained serum, and the thoracic cavity held a large quantity of dark coffee-coloured fluid with an ammoniacal odour. Portions of the pleuræ had a thin layer of soft lymph, stained brown, and easily rubbed from off the costal surfaces. This condition of the thoracic cavity and its contents I have found in cases of Nephritis, and very notably in one case, in which, on *post-mortem* examination, the kidneys were quite unrecognisable. No part but the pelvis retained its normal outline. The cortical and medullary substances were represented by a uniform, soft (but tough), red, reticulated mass, like a sponge, and both kidneys were scarcely half the ordinary size of one.

I am, consequently, of opinion that the change in the lung structures is only an indirect consequence of the disease. Its more direct cause seems to me to depend on the arrested secretion from the kidneys, which probably gives rise to an effort on the part of the lungs to perform a function for which they are physiologically incompetent. I have never had the opportunity of making a *post-mortem* examination of a case of Epizoötic Cellulitis, and therefore can draw no line of distinction between the *post-mortems;* but from the symptoms, I am strongly of the opinion that the diseases are distinct.

I was anxious to get conclusive evidence of this, which might, I thought, be done by finding whether this disease also followed copulation; but in that I

have been unsuccessful. The case which I expected might furnish evidence on the subject was that of a three-year-old filly, which was sent to Glasgow market to be served, and eight days after service there contracted Typhoid Fever, or Contagious Gastro-enteritis, such as I have just described. On inquiring, however, I find that the service of the horse she was put to has not—or is said not—to have been known to produce the disease in any other animal; so that it is possible that she may have contracted the disease from some other source in the Glasgow market, or from travelling in a contaminated, uncleansed horse-box. The mare referred to, after a serious illness, recovered, but communicated the disease to seven other animals, all under four years of age, of which three died. All the animals affected through her manifested the same symptoms—none of them suffering from Epizoötic Cellulitis, which, however, was prevalent in other parts of the district, but in all cases distinctly traceable to infection by copulation.

It may possibly be that the disease observed in 1825-6 in France was Gastro-enteric, or Typhoid Fever, while that observed in 1882 was Epizoötic Cellulitis. The gastro-enteric disease I have observed communicated in several instances by the importation of a strange horse to a stud, which in one instance I was able in a peculiar way to verify. About ten days after the animal arrived, the disease broke out in the stud, and a few days later the animal itself fell suddenly very lame.

From the gait, I thought the lameness proceeded from the hock, and although there was no swelling, on careful manipulation, great pain was found over an area of about an inch, at the lower portion of the astragalus. A day or two later, considerable swelling took place all round the hock, which, however, soon subsided, and the lameness improved. A little later the swelling had almost entirely disappeared, but the lameness returned with increased severity, and this time the patellar ligaments formed the seat. On account of these phenomena, and the sudden appearance of the disease so shortly after the animal's arrival, I thought it might be interesting to auscultate and percuss; and so it proved, for the lower portion of the right lung gave evidence of consolidation. In the course of a fortnight the mare got sufficiently well to be able to do light carting to which she was put, her ordinary service being tramway work. Whilst carting one day she fell and fractured her pelvis, both in front of and through the acetabulum. This, of course, gave me an opportunity of making a *post-mortem* examination, the interesting part of which—and the one I would like to draw your attention to—was the condition of the lung.

In the inferior third of the right lung there existed a portion completely consolidated, and having a yellowish-brown appearance in the centre, which, when cut through, seemed homogeneous, while all round its circumference there was a granular appearance, with here and there rather large spaces containing a milky fluid, in which appeared to be a number of oil globules. To me it seemed that the diseased portion was undergoing fatty metamorphosis, which, round the periphery of the solid portion, was liquefying and becoming absorbed.

Now, gentlemen, I do not wish to detain you by entering into the treatment of these diseases; but you will pardon me if, before concluding, I detain you a few minutes longer by glancing at what I think even more important, viz., some of the sanitary measures to be adopted. In large stables where the conveniences exist, I think that all freshly-imported horses, more particularly, of course, during an epizoötic, ought to undergo a month's quarantine in a stable apart from the general stable. In the event of one horse only being brought in at a time, where the horses are worked double, as in tramways, a horse from the general stock, to be wrought with the new one, could be placed alongside, and their harness and stable utensils kept apart.

The period of quarantine over, the boxes or stalls should be thoroughly disinfected, along with the clothing, harness, etc., fresh clothing put on the horses before being admitted to the general stable, and the clothing in use during quarantine washed with hot water and soda before being put along with the general stock.

When an epizoötic has once gained admission to a stable, isolation of the sick, when possible, should be the first consideration. The greatest possible attention should be paid to the condition of the ventilation and drainage, and the most absolute cleanliness enforced.

The mangers and woodwork ought to be washed down with hot water and soda, and the walls washed with lime and chloride of lime. Alternate fumigations of carbolic acid and sulphurous acid should be had recourse to night and morning; one of the fumigations taking place whilst the veterinary surgeon in attendance is paying his visit, in order that he may avoid the risk of carrying the disease to another stud.

A most reprehensible practice, I consider, is to leave the drinking water to be used the next morning in an infected stable over night. Nor should prepared foods be allowed to remain too long in a manger.

Each morning, when the stable is cleaned out, some lime ought to be scattered in the stables alike of sick and healthy horses, the sick horses being afterwards bedded down, and the stalls of the healthy horses allowed to remain bare, with the lime on them until night.

All droppings should be removed from the stables as quickly as possible, and mixed with lime before being thrown on the manure heap.

This precaution should at all times be insisted on, as I have been able to trace one outbreak of disease to the effects of some manure carted from an infected stable to a field where some young horses were going; and I see in last month's French journal that similar observations have been made in France.

These and similar precautions, into the details of which I need not enter, will do much, not only to limit the spread of the disease, but to mitigate the severity of the cases affected.

An interesting discussion followed the reading of the papers, the principal speakers being Professors McCall and Lewis, Messrs. Weir, Anderson, and Robinson.

The usual votes of thanks brought a highly successful meeting to a close.

J. MACQUEEN, *Secretary.*

Jurisprudence.

BRENTWOOD PETTY SESSIONS.—21ST MAY, 1885.

Frank Drake Denner, of South Weald, Brentwood, was charged with having professed to be a veterinary surgeon, he not being duly qualified. Mr. Thatcher prosecuted on behalf of the Royal College of Veterinary Surgeons, and stated that the proceedings were taken under Section 17, Sub-section 1, of the Veterinary Surgeons Act, 1881, which enacted that if after the 31st December, 1883, any person not being duly qualified as defined by the Act, took or used the title of veterinary surgeon or veterinary practitioner, or any name, title, addition, or description, stating that he was a veterinary surgeon, or a practitioner of veterinary surgery, or any branch thereof, or was specially qualified to practise the same, he should be liable to a fine not exceeding £20.

The defendant pleaded guilty, and stated that he had acted in ignorance of the law.

The bench took a lenient view of the case, and imposed a fine of £1 and costs.

Army Veterinary Department.

Gazette, April 28th.

Veterinary-Surgeon, First Class, Henry Dawson, to be placed on retired pay. Dated 30th April, 1885.

Gazette, May 12th.

The following gentlemen to be Veterinary-Surgeons on probation: — David Joseph Barry, James George O'Donel, Alexander Edward Richardson, and William Reginald Walker.

Gazette, May 19th.

Veterinary-Surgeon Arthur Bostock to be Veterinary-Surgeon First Class. The undermentioned gentlemen to be Veterinary-Surgeons on probation :— Edmund James Lawson, Harry Wilkinson.

The following veterinary officers have arrived home from India, having completed their tour of service in that country :—J. B. W. Skoulding, — Savage, R. Poyser, — Plomley, — Flintoff, — Philips, — Raymond.

A complimentary dinner was given to Mr. Harpley, late Royal Horse Guards, at Limmer's Hotel, on May 12th, on the occasion of his retirement from the service. The following officers were present :—Colonel Milne Home, M.P., in the chair ; General his Serene Highness Prince Edward of Saxe-Weimar, Field-Marshal Lord Strathnairn, the Duke of Richmond and Gordon, the Earl of Stair, Lord Colville, Lord Carrington, Lord Dalrymple, Lord Kilmarnock, Lord Skelmersdale, Lord A. Somerset, Sir F. Fitzwygram, M.P., Sir Archibald Campbell, Major-General Baillie, Major-General O. Williams, M.P., Colonel the Hon. O. Montague, Major Finch, Major Egerton, Major Stirling, Captain Atherley, Captain Wombwell, Hon. Rupert Carington, Hon. L. Byng, Mr. Merry, Mr. Selwyn, Mr. Matthews, Mr. Fergusson, Mr. Gordon, Mr. Howard Vyse, Mr. C. Combe, Mr. Weir, Mr. Drake, Mr. Williams, Mr. Fenwick, Mr. J. S. Forrester, and Mr. Sloane Stanley.

Obituary.

DEATH has removed from our midst one of the notable members of the profession who have done much to raise it in estimation and increase its usefulness. Mr. W. G. Spooner, M.R.C.V.S., of Southampton, died suddenly, on May 3rd, at the advanced age of 76 years. Though interfering but little in the politics of the profession, Mr. Spooner well and worthily represented it in a wide circle of friends and clients in his own particular locality ; but his name was known far beyond this by the interest he took in everything connected with farm live stock, and by the frequent and excellent papers he contributed to agricultural journals, or read before agricultural societies. Well-educated, and thoroughly trained in his profession, Mr. Spooner's tact and skill placed him in an excellent position to benefit himself and the community ; and his shrewd powers of observation and faculty of expression made him an always acceptable reader or writer on veterinary matters, and constituted him an authority of no mean calibre. He wrote a work on sheep, which is still a standard book of reference, and an excellent little treatise on the Horse's Foot.

We have also to record the death of J. Gordon, M.R.C.V.S., of New Deer, and J. C. Markham, Cannock; the former a graduate of 1861, and the latter of 1866.

The death of, perhaps, the oldest member in the veterinary profession is reported from Vienna, as having taken place in that city in February last. J. Elias Veith died, aged 96, "full of years and honour." He was a teacher in the Vienna Veterinary School from 1823 to 1855, and occupied a prominent position as an accomplished scientist and an admirable writer.

Notes and News.

CATTLE DISEASE IN AUSTRALIA.—A curious cattle disease has made its appearance in the You Yangs district in the Colony of Victoria. An Australian paper says:—"Mr. Kendall, veterinary surgeon, has furnished a report to the Government on the cattle disease in the You Yangs district. The report states that during the past four years, since the disease broke out, 700 or 800 cattle altogether have died of it. In the digestive organs of the dead animals considerable quantities of rabbit bones were found, which Mr. Kendall has no hesitation in pronouncing a form of Anthrax or blood-poisoning. The predisposing cause of this is the bad quality of the water, and the fact that the alkalies which the water contains give animals a depraved taste for chewing animals' bones. The blood of the animals was observed to contain bacilli, not in large numbers, and bacteria were discovered in the water that the animals drank."

PROFESSOR BOULEY.—Some time ago, a movement was started in Paris to commemorate the election of Professor Bouley, the illustrious veterinarian, to the Presidency of the Académie des Sciences of France—perhaps the highest scientific society or corporation in Europe—by presenting him with a gold medal of honour, specially struck for the occasion—a replica of this in bronze to be given to each subscriber. This resolution having been duly notified to the veterinary profession, the call for subscriptions was readily responded to by veterinary surgeons in every part of the world, and the result was the collection of a sum ample for the object in view. The medal was recently presented to M. Bouley by a deputation of veterinary surgeons, who waited upon him in Paris. The bronze copy has been forwarded to the subscribers, and from that now before us, there can be no doubt as to the appropriateness and artistic value of the medal, which has been designed by Roty. On the obverse is an excellent likeness of the first veterinarian who has occupied the exalted position of President of the Académie, and on the reverse is an allegorical group, designed to testify to the active and prominent part he has taken in introducing Pasteur's protective inoculation for certain deadly contagious diseases. This represents a human figure inoculating a sheep, and above is the motto: "ARTE NOVA PASTOR PECORUM CONTAGIA VINCIT, GRATUM OPUS AGRICOLIS," while immediately beneath, on a scroll encircling bay and laurel leaves, are the words: "*Souvenir du 26 Janvier*, 1884;" and the inscription: "*Inspector-Général des Ecoles Vétérinaires, Commandeur de la Légion d'Honneur, Professeur au Museum—Ses Elèves, Confrères, Ses Amis*"—the lower part having the figure of a coiled serpent, the head bent over a tablet, on which it is inscribing. In the centre is a small space, on which the name of the subscriber is stamped. Altogether this souvenir of a great event is worthy of the occasion.

VETERINARY LEGISLATION.—England having been the first country in Europe to protect veterinary surgeons and veterinary medicine from the damaging influence of unqualified men, the profession abroad is bestirring itself in this direction, and is striving to obtain similar privileges to those accorded us in the Veterinary Surgeons Act. In Germany and in France, where there is no law to suppress impostors or empirics, steps are being taken, we believe, to obtain legislative protection; and in a recent number of the *Recueil de Médecine Vétérinaire*, M. Bouley reviews in detail, and in terms of commendation, the different clauses in our Act of Parliament.

Correspondence.

FELLOWSHIP: THE NATIONAL VETERINARY MEDICAL ASSOCIATION.

SIR,—Setting aside the miserable personalities of your correspondents, what remains? Have they proved the superiority of the Fellows? Has Mr. Olver or this "F.R.C.V.S." brought forward one fact to show that the Fellows have really and laudably raised themselves to a higher position—that they are better men and better practitioners, and more worthy of the Council and Examining Board, than hundreds of Members around them? They have not.

What "mud" have I thrown at the Fellows? Do not Class I., II., III. and IV. faithfully and truly portray them? The truth is not "mud." Do your correspondents deny that in round numbers the Fellows are 100—that sixty or seventy of these men are Fellows by the date of their diploma and a £10 fee—that though among the remaining thirty or forty there are good men, yet others owe their position to the leniency of the Examiners—all and sundry who came first to the bridge being allowed to go over—while outside and on the other side stands the P.R.C.V.S., some professors, a few examiners, and a host of good practitioners who will not—and rightly too—bow to examination?

"Wherein consists the superiority of the Fellows?" "Why should Council chamber and examining-room be handed over next year exclusively to them?" The questions remain unanswered. Let your correspondents drop their paltry, cowardly, personal remarks and reply; let them show good reason for the arbitrary decree of the Council shutting out more than 2000 Members, and handing over the honours and management of the profession to a few Fellows, the big majority of whom are not a whit better than their neighbours.

"Opinions and tastes" certainly differ, and my idea of the Fellowship degree is a high one. A higher and more honourable degree, it should only be conferred on those worthy of it. If we are to have Fellows at all, they should be Fellows in deed and in truth—not in form or, it may be, in farce. No ordinary veterinary surgeon who has crammed himself for examination should hold it. The Fellows should be men who have given abundant proof that in attainments, research, and scientific knowledge they are really above the Members of the profession, and even with 100 Fellows of this kind it is doubtful if the decree of the Council could be justified. These clever and talented Fellows sometimes make mistakes. Into their constitution the milk of human kindness and common-sense and consideration for others not infrequently but sparingly enters, and to hand over the profession to Fellows even of a high class would in my opinion be a grave error. Let the Fellowship degree flourish. Let all who think themselves worthy of it aspire to it, but leave Council Chamber and Examining Board open as heretofore to all Members worthy of them.

"Anonymity may have its uses," but a Fellow of the Royal College of Veterinary Surgeons should of all men be a gentleman, and an "F.R.C.V.S." who shelters himself behind his anonymity, and indulges in personal abuse and false statements regarding the Highland Society and Scotch practitioners, and glories in his conduct, is in my opinion a disgrace to his order—fit for neither Council nor Examining table—and can scarcely be classed among "decent, well-mannered people." On his own little not too salubrious eminence let this hiding half-hidden "Fellow" crow—he will do but little harm. "Good, right-thinking, straightforward members will at all times make better Councilmen and Examiners than such or such-like Fellows."

The National Veterinary Medical Association.—Had Mr. Olver kindly informed me of his intention to nominate me as a representative for Scotland on the Council, I would certainly have declined the honour. To properly represent Scotland on the Council of the R.C.V.S. or of even of the N.V.M.A. requires an amount of time, means, and travelling which I make bold to say comparatively few Scotch practitioners can afford to give or to undertake. To attend four meetings of Council in London simply means—at the lowest calculation—twelve or fourteen days' absence from home, £25 expenditure, and nearly 3000 miles travel. Our friends in London or within 150 miles of it can attend almost as many meetings as they choose at the cost of a few hours or days from their practices, and an expenditure of a few shillings or pounds. Scotch practitioners are heavily handicapped in this respect, and such being the case, there is surely nothing unreasonable or immoderate in their request that the R.C.V.S. or the N.V.M.A. should visit them occasionally—that they should have power among themselves by the Parliamentary mode of election to send a few men to Council—and that one or two Scotch practitioners should sit on the practice tables. If these modest and just demands are within the next few years complied with the "noise and howling from Scotland" will cease. In the meantime, I cordially join with Mr. Olver in hoping that the National Society will visit Scotland next year, that Scotch practitioners will welcome it warmly, and that our friends from the South will enjoy their visit.

In closing, Mr. Olver will perhaps excuse my reminding him that the son of a blacksmith or farmer or veterinary surgeon, accustomed to see and handle horses almost from infancy, makes almost invariably a better veterinary surgeon than a well-educated young gentleman or clerk, whose acquaintance with horses and cattle is not of a very practical nature. The former is often the man of *real* "veterinary education and science," and not infrequently of "gentlemanly demeanour," while the latter is just as frequently the man of "*so-called* education and science," and is not invariably the real gentleman Mr. Olver mentions. Good men, of course, hail from both classes, but it is rather a singular fact that the men at the present time at the head of the profession belong—with few exceptions—to the first class.

Trusting, sir, that, though rather late, you will kindly insert this in your issue for May.

Slateford, *April 20th*, 1885. C. CUNNINGHAM.

THE FELLOWSHIP DEGREE.

SIR,—As my letter to you of April 20th did not appear in this month's issue, and as I have since read your article on the "Fellowship Degree," perhaps you will allow me to say that, while admiring the general tone and moderation of your remarks, there is one aspect of the question which you appear to ignore—viz., the practical application of the Clause.

There are four Fellowship Examiners; one, to the regret of all, has been unable to act; another has ceased to act; the remaining two gentlemen have been the Examiners for nearly twelve months.

A young man, "twenty-six years of age, five years in practice," prepares for our examination, which is neither "very exacting," nor "particularly severe," and passes. Thenceforth the council-chamber and examining-room are open to him.

Beside this young man stand a few of his professors, some of his examiners, many of his neighbours—perhaps even the young fellow's own father—men who have seen long service and have done good work, "who have borne the heat and burden of the day"; but who have a very natural and deep-seated aversion to examination. The Council, through its Fellowship clause, comes to such men and virtually says, "We know that you have long and honourably practised your profession; that in professional knowledge and skill you are second to none; that in merit you are equal to many holding the higher degree—but we have made a decree, and that decree, like that of certain ancients, stands, 'Go ye up before the Fellowship Examiners; submit yourselves and your attainments to their searching gaze; place it in their power to pass or relegate you. If you satisfy them, you shall become Fellows; if not, next year we shall shut the doors of the council-chamber and examining-room in your face.'" Such is the fiat of Clause 9, Charter 1876. Does the profession—will the profession—endorse it?

Is this Fellowship examination the only "inducement and stimulus to work" the Council has to offer? Have not many—not Fellows—"shown," and shown abundantly, "that they *have* worked"? Is this the "reward that is to sweeten their labour"? If the "rewards of our poor profession" are conferred solely on all and sundry who pass this variable examination, what remains to those whom long service and honourable conduct justly entitle to scorn the idea of it?

C. CUNNINGHAM.

EQUINE VARIOLA.

SIR,—In this month's number of your Journal, I find a letter written by Dr. Fleming in reference to the paper I read at the last meeting of the Lincolnshire Veterinary Medical Association, on "Special Forms of Stomatitis." The chief complaint, I take it, Dr. Fleming has against me is that I did not give sufficient prominence to the fact of his having been the first to describe the disease in this country.

In writing a paper of the kind at present under discussion, one has not always sufficient time at one's disposal to enter into elaborate particulars as to who was or who was not entitled to the position of priority; but I think, in this instance at least, I sufficiently suggested that Dr. Fleming was entitled to this position, and he acknowledges himself that on the Continent others were entitled to priority. In the remarks I made on Contagious Pustular Stomatitis, I was desirous mainly to show that there was a possibility of such an affection existing in an enzoöty or epizoöty, without its being necessarily associated with Equine Variola, and I may be pardoned if I say that there is nothing in Dr. Fleming's letter that tends to convince me to the contrary. In one part of his letter, Dr. Fleming seems to question the fact of my having seen *typical* cases of Variola Equina, and that, too, on the ground that I have not described these cases. Surely it is not necessary for me, or any other professional man in my position, to describe minutely the symptoms presented by any particular disease, to convince another professional man of acknowledged probity and ability that I had positively witnessed that particular affection?

The cases of Equine Variola which have come under my notice have not

differed materially in their manifestations from those described at different times by Dr. Fleming; but, in all cases of this kind previously observed by me, I have not seen the eruption *entirely confined to the mouth and borders of the lips*, in the same manner as in the two series of cases referred to in my paper. The last case of Variola Equina which came under my notice occurred in the practice of Mr. Rutherford, M.R.C.V.S., in this city; and in that, as in previous cases I have seen, the eruptions were general.

I do not myself think that the fact mentioned by Dr. Fleming of the eruptions appearing in the Schneiderian mucus membrane, and on the face and croup in particular instances, is any positive argument against the probability of there being an infective Pustular Stomatitis quite distinct in its character from an Equine Variola. Ante-inoculation, it may be presumed, is as likely to take place in one case as in the other; and it is easy to comprehend that the virus of an even *locally infective disorder*, brought in contact with an open wound, might induce therein, and impart, even at a distance (through the lymphatics), a similar condition.

Perhaps I laid too much stress upon the remark "That I was unable to imagine the possibility of a series of cases of any general, infective, eruptive disorder occurring in which the lesions are entirely localised in one particular part;" nevertheless, I should imagine that if the two affections under consideration were identical, I should have had, in the series of cases quoted by me, some evidence of their identity; and Dr. Fleming has himself stated, in another place, that even Variola Vaccina may develop lesions in parts other than the udder, *e.g.*, the heels, the scrotum, the mouth, lips, etc., and *my experience* of this affection is confirmatory of his.

There is one characteristic of the affection mentioned by me which I have not seen in connection with Variola Equina, nor do I remember that it has been noticed by others (if it has, Dr. Fleming will, perhaps, correct me in the matter), viz., Suppurative Lymphadenitis—a characteristic of a very pronounced type in those cases where the cause of the affection was not arrested by what proved to be abortive treatment; a form of treatment which, I may be allowed to remark, is by no means universal, nor even approximately successful, when applied to such an affection as Foot-and-Mouth Disease.

In conclusion, sir, allow me to say that I shall in the future watch with even more than my ordinary care any cases similar to those I have described, as also any cases of Variola Equina which may come under my immediate observation, with a view to determine whether they are or are not co-related, or only different phases of the same malady; and, I feel assured that my friend Dr. Fleming will assist me in the satisfactory determination of the point, if opportunity offers for so doing.

Royal Veterinary College, Edinburgh, *May 12th.* THOMAS WALLEY.

A MISSTATEMENT.

SIR,—Mr. Smith, in the March number of the VETERINARY JOURNAL for this year, charges me with having made an "astounding misstatement," and since it is only right that we should know the nature of the misstatement complained of, I beg to call attention to the undermentioned statements:—

Speaking of the association of a mould fungus in Bursatti, Mr. Smith said,—"But I have not found it after the sore has been hardened by chromic acid" (VETERINARY JOURNAL, *July*, 1884, p. 17).	Charging me with misstatements, Mr. Smith says he did not state "that sores should not be examined after hardening in chromic acid" (VETERINARY JOURNAL, *March*, 1885, p. 218).

The facts are, sir, that Mr. Smith has diverted attention by a mere play upon words; for so long ago as 1876, Drs. Lewis and Cunningham, when engaged in investigating the nature of Delhi Boil, had stated that "tissues which have been preserved in solutions of chromate of potash, or chromic acid, are very apt to become the sites of growth of fungi." (Report on the 'Oriental Sore,' or Lupus Endemicus, observed in India, by Drs. T. R. Lewis, and D. D. Cunningham, Calcutta, November, 1876). And my own experience leads me to corroborate the above. Thus, I have found the parasites in question in great numbers in pieces of healthy liver of the horse, as well as in other tissues, which were so hardened.

Cawnpore, *March 28th*, 1885. R. W. BURKE, A.V.D.

"KUMRI" AND RHEUMATOID ARTHRITIS.

DEAR SIR,—In the VETERINARY JOURNAL for March Veterinary Surgeon (1st class) R. Poyser asserts his claim to "the honour" of being "the first to discover that the disease known in India as 'Kumri,' and supposed to be 'Paraplegia,' is not a paralytic affection." I will, however, with your permission, remind Mr. Poyser that, as long ago as 1858, I decided and declared that "Kumri" was not a paralytic disease, but the result of a diseased condition of the hocks. As evidence, I enclose two papers written by me—the first in 1874, and published in the *Veterinarian* in 1875, which contain my views; and shall feel greatly obliged if you will do me the honour to republish them in your journal. I also attach, for publication, a copy of a letter received from a medical friend on the subject.

I regret to trouble you in this matter; but having tested, and confirmed, the opinion I had formed by careful investigation, I have maintained that opinion ever since, in the face of universal and bigoted opposition, combined, in some instances, with ridicule. I am, therefore, disinclined to allow my ideas to be appropriated—for the second time—and reproduced as original with impunity. Should Mr. Poyser have forgotten that I have done so, and the loss of my valuable collection of morbid specimens that I sustained on a voyage home from India in 1877, his memory must have become terribly defective. It may be as well to state that I met with several cases of "Articular Rheumatism" in Meerut and Umballa, in and subsequent to 1878-1879, and in no instance did I fail to diagnose the disease; and would point out that horses recover perfectly from "Articular Rheumatism," but "ulceration of the articular surfaces of the hock joint," that may arise from various other causes, cripples them for life, and is the true cause of the Locomotor Ataxy designated by the natives of India "Kumri."

If there be any *kudos* attached to taking a common-sense view of symptoms in disease, the profession will now be able to judge to whom "the honour" belongs in this case.

JOHN B. W. SKOULDING,
V. S. (1st Class), A.V.D.

[Owing to the demands upon our space, we are obliged to defer the publication of the lengthy papers referred to, as an appendix to this letter.]

SPAYING: IS IT JUSTIFIABLE OR CRUEL?

SIR,—In reply to the above query in your last month's issue, I venture to express the opinion, based on a practical experience of twenty-five years, that, although undoubtedly a painfully severe operation, spaying is, in pigs especially, requisite and justifiable. There is, however, a doubt in my mind as to its absolute necessity in calves, though none as to its utility. In milch cows

its adoption with a view to prolong the secretion of milk, etc., I have no hesitation in asserting to be a complete failure, consequently cruel and unwarrantable; and bitches being so easily controlled during the period of œstrum, the operation should never be performed unless in exceptional instances, and then only when the animal is under the influence of an anæsthetic; and last, but not least, I certainly think this, or indeed any other operation, should only be permitted to be performed by qualified men, instead of, as at present, chiefly by "castrators" or "gelders," as they are styled, the majority of whom present strong visible symptoms of chronic alcoholic poisoning—a condition, to my thinking, by no means desirable for such undertaking.

I have no doubt some members of the profession will differ from my opinion that it should only be permitted by qualified men, and for obvious reasons. Many, fortunately possessing select connections and first-class town practices, are not required to do it. Again, *there are those who cannot spay*, and would rather *encourage the local gelder* than risk opposition from a rival brother chip; and some there are whose intellectual sublimity is of such magnitude that they would lead you to believe it would be nothing short of defilement to have anything to do with that vulgar species of *gintleman*, who, in Ireland, is accredited with paying the *rint*, belongs Be this as it may, I am not ashamed to state that I have earned many an honest pound by castrating and spaying, and hope to do so again. I consider it not only *equally* as reputable a method of earning money, *but more so* than the practice adopted by some *of making their profession a cloak for horse coping*.

Now, so far from its being *infra dig.* to perform this operation, I am decidedly of the opinion I once heard expressed by Professor Simonds, that, when executed with expedition and dexterity, it is an extremely neat operation, and however good an anatomist a man may be, nothing but practice will render him expert. Moreover, as we cannot all be "top-sawyers" in our profession, any more than in the medical profession, I consider it imperative on the part of *us, humble country practitioners*, to do it as a matter of self-protection against gelders, etc.; indeed, I think that all veterinary surgeons should be good castrators and spayers, *unless we are to become the laughing-stock* of *such*, and *men* of the *Farmer Miles stamp*. In this opinion I feel persuaded I am supported by a majority of those in mixed and country practice; for how often have I known the gelder of a short time enlarge his sphere of operations by going in for quacking and doctoring—to obtain and keep which he will *contract* to gull his victims, and carry on his ignorant, and ofttimes barbarous, practices at such a sum as no respectable veterinary surgeon would attempt? And thus, from the genus gelder, in how many instances have sprung into existence the cowleech, the quack, etc., now elevated by the Act of 1881 to the dubious dignity and title *of existing practitioner?*

F. T. WELHAM, M.R.C.V.S., ETC.

"A CANINE AND PUBLIC GRIEVANCE."

SIR,—I fully expected, after publishing my illustrations of canine ignorance in the *Live Stock Journal*, to receive an attack from some quarter, and therefore "R.O.F.S.'s" effusion in last month's VETERINARY JOURNAL does not surprise me. A man zealous in a good cause must take the bitter with the sweet. It is not the first time I have been told that my aim is the chair of canine pathology. Such a charge is as groundless as it is narrow-minded, and with this short answer I will leave it for the further reflection of

"R.O.F.S." Now for the invitation or advice and reproof kindly offered by "R.O.F.S." in the following paragraph :—"If he be desirous of reformation in the curriculum of the various veterinary schools, let him bring his ideas straightforward at the proper time and place, and not stand behind the scenes and merely agitate outsiders by contributions to agricultural papers, at the expense of his professional brethren and his own etiquette." The "proper time" has long passed ; the subject was urged by Youatt in its "proper place" (The Royal Veterinary College), and forgotten in his death.

Before writing publicly, I pleaded through the fittest of all professional mediums, the VETERINARY JOURNAL, but vainly ; I then, having exercised *etiquette* to no purpose, opened the subject in the columns of the *Live Stock Journal*, a paper eminently suited for its ventilation, a thorough friend to our profession, and one, although perhaps now drifting more into an agricultural channel, which has ever advanced the interests of the canine world. Why "R.O.F.S." should be sore upon the latter point I cannot tell ; but I may inform him that many veterinary surgeons besides myself write to agricultural journals, although for some reason their names are not published. As I detest *nom-de-plumes*, initials, or concealment, I adopt the reverse course.

But whatever blame may be cast upon me, in the end I shall be perfectly satisfied, as I am now, in having done my utmost to move the powers that be to consider, as a most important part of veterinary tuition, the claims of the canine race. I think it is simply a disgrace to the veterinary profession that year after year men should go forth from their college, utterly ignorant of a subject of such vital importance to the world at large.

Take, for illustration, the horrible malady of "Rabies," the verdict to be decided by a man who has never seen a case, nor probably heard a lecture on the subject. What fearful havoc such a man might occasion through an incorrect diagnosis !

My only motive in writing so often on this "Canine and Public Grievance"—for both assuredly it is—has been, not from self-interest, but for the sake of a good cause and for the public welfare ; and so long as our teaching schools and their governing boards ignore it, so long shall I consider both guilty of neglecting what I feel sure it is in their power to promote. If the adversities of veterinary surgeons are so great as suggested by "R.O.F.S.," there surely is all the stronger reason for educating them efficiently in a lucrative branch of the profession.

A little of that liberality we are asked to exercise towards what, in my humble opinion, was not required, a new Royal College building, would be well expended in founding a chair to redeem the profession from the scorn and ridicule it has drawn upon itself through the inexcusable neglect of canine pathology. The egregious blunders of one man not only injure himself, but the profession as a body ; and my illustrations were not penned to hold up the mistaken ones to ridicule, but to stimulate the public to take the matter up, as it would appear futile to advocate the cause further in its proper quarter.

J. WOODROFFE HILL, F.R.C.V.S.

THE EDUCATION OF VETERINARY STUDENTS.

SIR,—Reformation is much needed in our system of teaching ; we must and *will*, have men able to do the work. Many a man possesses the diploma, "fully qualified, etc., etc.," who has never examined three horses as to soundness, or seen a cow calve, or castrated a bull. Perhaps one good argument against the apprenticeship matter is the fact that a lad may

not always be lucky in living with a respectable and scientific veterinary surgeon.

Whether the following proposal is possible of carrying out, I cannot say: To have a large breeding establishment formed for cattle, as well as horses, in an agricultural district. To teach chemistry, botany, etc., etc., and all matters pertaining to the actual duties which go to form the daily routine of a busy practitioner's life, such as castration, parturition, examinations, etc. To make each student do the work *with his own hands*, and before his fellow-students.

Another great advantage would be that the pupils would be unable to indulge in the many dissipations that ruin so many in London, Edinburgh, etc.

There are plenty of monied people willing enough to come forward to assist in great commercial matters in the City, and I feel certain that if the above affair were properly put before them, it could be carried out with advantage to all concerned. "ACTUAL WORK *v.* ONLOOKER."

TO CORRESPONDENTS.

SEVERAL communications and reports, for which there was not space in this month's JOURNAL, will appear next month.

We are sorry we cannot publish Professor McFadyean's letter—the terms he employs, and the tone he adopts, rendering it impossible to afford him this privilege, or to further discuss the matter of which it treats. We are ready to substitute "large number" for "great majority," if that will soothe him; but we would refer him to Legh's "Anatomy"—a work with which he does not appear to be acquainted—in the original German, or the French edition by Zundel. He will there find that his assertion is not based on fact, while the statement he contradicts is absolutely true.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from R. W. Burke, A.V.D., Cawnpore; A. W. Hill, London; J. B. Gresswell, Louth; Professor McCall, Glasgow; J. H. Carter, Burnley; H. Leeney, East Grinstead; J. Woodroffe Hill, Wolverhampton; Professor McEachran, Montreal; E. Kitchin, Liverpool; C. Gresty, Newcastle-on-Tyne; J. Macqueen, Glasgow; H. Kidd, Hungerford; J. B. Wolstenholme, Manchester; F. T. Welham, Brentwood; "Actual Work *v.* On-looker"; C. Cunningham, Slateford; Professor Walley, Edinburgh; R. Rutherford, Edinburgh; Professor McFadyean, Edinburgh.

BOOKS AND PAMPHLETS: *J. F. Allen, M.D.*, "Is Enteric Fever a Cattle Disease?" *A. Lydtin*, Ueber die Perlsucht; Journal of the Royal Agricultural Society of England; *T. Christy*, New Commercial Plants and Drugs; Indian Civil Veterinary Reports; *F. Eichbaum*, Grundriss der Geschichte der Thierheilkunde.

JOURNALS, ETC.: *Revista Popular de la Exposicion Rural; American Veterinary Review; Tidscrift für Veterinar-Medicin; Journal of Comparative Medicine and Surgery; Scottish Agricultural Gazette; Lancet; British and Colonial Druggist; Wochenschrift für Thierheilkunde und Viehzucht; Der Thierarzt; Animal World; Mark Lane Express; Live Stock Journal; Annales de Médecine Vétérinaire; Repertorium für Thierheilkunde; Revue Vétérinaire; Archiv für Wissenschaftliche; Der Hufschmied; Œsterreichische Vierteljahresschrift für Wissenschaftliche; Chicago Live Stock Journal; Edinburgh Medical Journal; Clinica Veterinaria; Kansas Live Stock Indicator; Quarterly Journal of Veterinary Science in India.*

NEWSPAPERS: *Glasgow Herald; Minneapolis Tribune; North-Eastern Advertiser and Malton Gazette; Kent Messenger; Ea tern Daily Press.*